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The "Insert Disc"
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A Genuine
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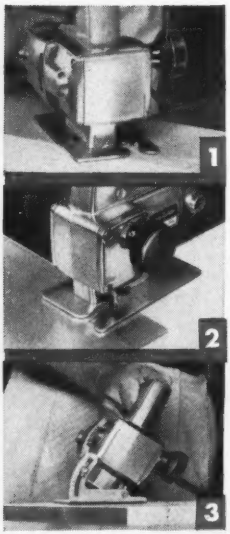
Electric Hand Saw Loaded with Exclusive Features!



The Porter-Cable 152 Hand Saw is the only saw with the patented insert disc which virtually eliminates chipping and insures a smooth, even cut on plywood, plastic laminates and other materials. It's the all-purpose saw for home or workshop—hack saw, scroll-saw, cross-cut saw, jig saw, keyhole saw, coping saw and rip saw.

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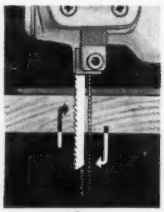
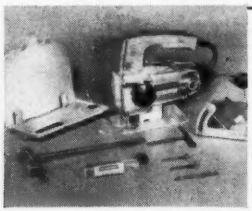
2 CUTS METALS, TOO—¼" aluminum, ⅛" steel! Sheet metal, fittings, bar stock, and pipe are cut quickly and cleanly.

3 CUTS ANGLES...accurately! Accessory base allows precise angle cuts up to 45°. Easily and quickly adjusted.





EXCLUSIVE ORBITAL ACTION Blade moves ahead on upward stroke—backs away from work on down stroke. Eliminates drag and excess heat. Cuts 3 times faster. Blade life up to 30 times longer.

SAVE $10 on SAW and Special Kit

Saw complete with package of 3 assorted blades, patented "Insert Disc," allen wrench and tube of grease. Kit contains handy wall bracket, angle base, rip guide, and extra blade assortment.

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Just the same, I took quick stock of myself that night. Came up with four good reasons why the company would keep me on:

Three years' experience
Getting along with foreman
Turning out acceptable work
Prompt and dependable

And four just-as-good reasons why they might let me go:

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Still rated "semi-skilled"
Needs special training

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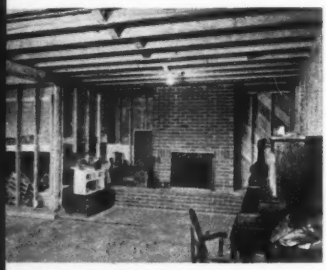

How to turn an unfinished basement into a beautiful, livable part of the house is only one of the exciting projects you'll find in this month's big home modernization issue—and each project is designed for the amateur builder.

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MECHANIX ILLUSTRATED is published monthly by Fawcett Publications, Inc., Fawcett Building, Fawcett Place, Greenwich, Conn. Editorial offices: 67 W. 44th St., New York 36, N. Y. Advertising offices: 67 W. 44th St., New York 36, N. Y.; 612 N. Michigan Ave., Chicago 11, Ill.; Townsend, Millsap & Co., 159 S. Vermont Ave., Los Angeles 4, Cal. and 110 Sutter Street, San Francisco 4, Cal.; 1659 Guardian Bldg., Detroit 26, Mich.; Hale Printup Assoc., Langford Bldg., Miami 32, Fla. and 4087 Haverhill Drive, N.W., Apt. 10, Atlanta, Ga. Entered as second class matter at the post office at Greenwich, Conn., under the act of March 3, 1879, with additional entry at Louisville, Ky. Printed in U. S. A. Title registered in the U. S. Patent Office.

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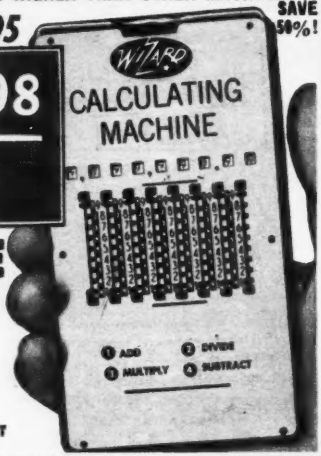

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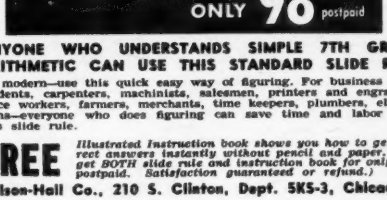

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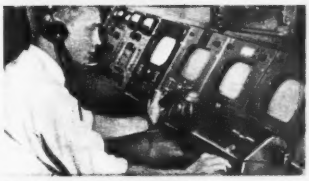

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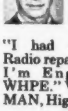
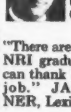


"I was repairing Radios by 10th lesson. Now have good TV job." M. R. LINDEMUTH, Fort Wayne, Ind.



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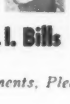

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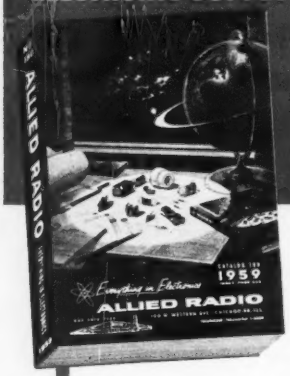

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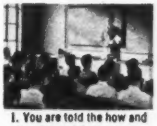

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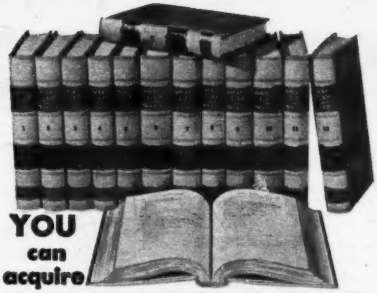

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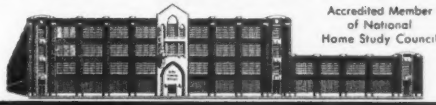

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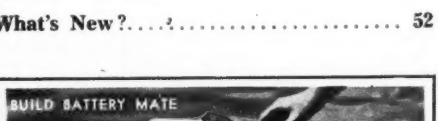

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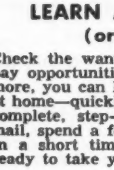

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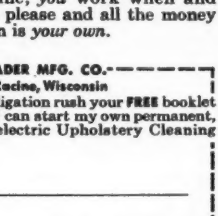

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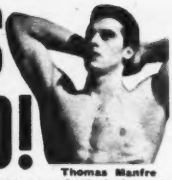

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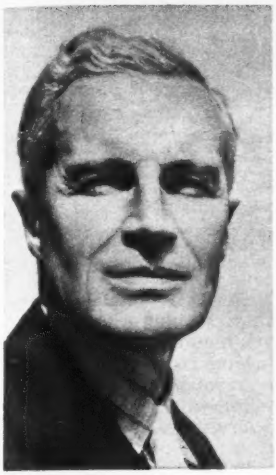

I'd like to give this to my fellow men...

while I am still able to help!

I was young once, as you may be—today I am older. Not too old to enjoy the fruits of my work, but older in the sense of being wiser. And once I was poor, desperately poor. Today almost any man can stretch his income to make ends meet. Today, there are few who hunger for bread and shelter. But in my youth I knew the pinch of poverty; the emptiness of hunger; the cold stare of the creditor who would not take excuses for money. Today, all that is past. And behind my city house, my summer home, my Cadillacs, my Winter-long vacations and my sense of independence—behind all the wealth of cash and deep inner satisfaction that I enjoy—there is one simple secret. It is this secret that I would like to impart to you. If you are satisfied with a humdrum life of service to another master, turn this page now—read no more. If you are interested in a fuller life, free from bosses, free from worries, free from fears, read further. This message may be meant for you.

By Victor B. Mason

I am printing my message in a magazine. It may come to the attention of thousands of eyes. But of all those thousands, only a few will have the vision to understand. Many may read; but of a thousand only you may have the intuition, the sensitivity, to understand that what I am writing may be intended for you—may be the tide that shapes your destiny, which, taken at the crest, carries you to levels of independence beyond the dreams of avarice.

Don't misunderstand me. There is no mysticism in this. I am not speaking of occult things; of innumerable laws of nature that will sweep you to success without effort on your part. That sort of talk is *rubbish!* And anyone who tries to tell you that you can *think* your way to riches without effort is a false friend. I am too much of a realist for that. And I hope you are.

I hope you are the kind of man—if you have read this far—who knows that anything worthwhile has to be *earned!* I hope you have learned that there is no reward without effort. If you have learned this, then you may be ready to take the next step in the development of your karma—you may be ready to learn and use the secret I have to impart.

I Have All The Money I Need

In my own life I have gone beyond the need of money. I have it. I have gone beyond the need of gain. I have two businesses that pay me an income well above any amount I have need for. And, in addition, I have the satisfaction—the deep satisfaction—of knowing that I have put more than three hundred other men in businesses of their own. Since I have no need for money, the greatest satisfaction I get from life, is sharing my secret of personal independence with others—seeing them achieve the same heights of happiness that have come into my own life.

Please don't misunderstand this statement. I am not a philanthropist. I believe that charity is something that no proud man will accept. I have never seen a man who was worth his salt who would accept something for nothing. I have never met a highly successful man whom the world respected who did not sacrifice something to gain his position. And, unless you are willing to make at least half the effort, I'm not interested in giving you a "leg up" to the achievement of your goal. Frankly, I'm going to charge you something for the secret I give you. Not a lot—but enough to make me believe that you are a little above the fellows who merely "wish" for success and are not willing to sacrifice something to get it.

A Fascinating and Peculiar Business

I have a business that is peculiar—one of my businesses. The unusual thing about it is that it is needed in every little community throughout this country. But it is a business that will never be invaded by the "big fellows". It has to be handled on a local basis. No giant octopus can ever gobble up the whole thing. No big combine is ever going to destroy it. It is essentially a "one man" business that can be operated without outside help. It is a business that is good summer and winter. It is a business that is growing each year. And, it is a business that can be started on an investment so small that it is within the reach of anyone who has a television set. But it has nothing to do with television.

This business has another peculiarity. It can be started at home in spare time. No risk to present job. No risk to present income. And no need to let anyone else know you are "on your own". It can be run as a spare time business for extra money. Or, as it grows to the point where it is paying more than your present salary, it can be expanded into a full time business—overnight. It can give you a sense of personal independence that will free you forever from the fear of lay-off, loss of job, depressions, or economic reverses.

Are You Mechanically Inclined?

While the operation of this business is partly automatic, it won't run itself. If you are to use it as a stepping stone to independence, you must be able to work with your hands, use such tools as hammer and screw driver, and enjoy getting into a pair of blue jeans and rolling up your sleeves. But two hours a day of manual work will keep your "factory" running 24 hours turning out a product that has a steady and ready sale in every community. A half dollar spent for raw materials can bring you six dollars in cash—six times a day.

In this message I'm not going to try to tell you the entire story. There is not enough space on this page. And, I am not going to ask you to spend a penny now to learn the secret. I'll send you all the information, free. If you are interested in becoming independent, in becoming your own boss, in knowing the sweet fruits of success as I know them, send me your name. That's all. Just your name. I won't ask you for a penny. I'll send you all the information about one of the most fascinating businesses you can imagine. With these facts, you will make your own investigation. You will check up on conditions in your neighborhood. You will weigh and analyze the whole proposition. Then, and then only, if you decide to take the next step, I'll allow you to invest $15.00. And even then, if you decide that your fifteen dollars has been badly invested I'll return it to you. Don't hesitate to send your name. I have no salesmen. I will merely write you a long letter and send you complete facts about the business I have found to be so successful. After that, you make the decisions.

Does Happiness Hang on Your Decision?

Don't put this off. It may be a coincidence that you are reading these words right now. Or, it may be a matter that is more deeply connected with your destiny than either of us can say. There is only one thing certain: If you have read this far you are interested in the kind of independence I enjoy. And if that is true, then you must take the next step. No coupon on this advertisement. If you don't think enough of your future happiness and prosperity to write your name on a postcard and mail it to me, forget the whole thing. But if you think there is a destiny that shapes men's lives, send your name now. What I send you may convince you of the truth of this proverb. And what I send you will not cost a penny, now or at any other time.

VICTOR B. MASON
1512 Jarvis Ave., Suite M-4-L
CHICAGO 26, ILLINOIS

Dear Editor

Address mail to: MECHANIX ILLUSTRATED, Letters Editor, 67 West 44th Street, New York 36, N. Y.

● *Let's Talk Turkey*

I enjoy Wynn Davis' articles on hunting and fishing and look forward to them every month. But when is he going to do an article about my favorite American game bird, the wily wild turkey?

Jack Gilbraith
Atlanta, Ga.

There's a turkey in your future, Jack, and it's coming sooner than you think. It just happens that Wynn has turkey talk in this very issue.

● *Another Hiccup Cure*

Regarding those hiccup cures in the June MI—in my case I have found that hiccups come at regular intervals. I count the period between each hiccup until I get the time interval. Then at that instant I swallow hard. After three or four hard swallows that is the end of my hiccups, believe it or not! Try it!

Frederick R. Ludwig
Bluffton, Ohio

By George, it works! Hic!

● *Marxed Man*

A happy if hysterical childhood dominated by the Marx Brothers has left me with certain scars, mental as well as those earned by diving on rocks. For instance your July cover showing a family enjoying their motor scooter with sidecar for the kiddy did what every sidecar always does—reminded me of a running gag in which Harpo was Groucho's chauffeur, the equipage being a motorbike with sidecar. Every time Harpo let out the clutch he whipped away leaving Groucho at the curb in the sidecar. When Groucho finally insisted on taking the handlebars, Harpo raced off solo in the sidecar. MI should run plans for a rig like that. Do you know the name of that movie?

T. R. Caswell
Syracuse, N. Y.

Our Marx Brothers Editor tells us the movie was Duck Soup. As an independent sidecar we recommended the Isetta.

● *Semi-Entranced Readers*

I weigh 108 pounds. Could hypnotism help cure my fear of bigger men?

D. D. M.
Houston, Texas

It could be suicide.

In the August MI there is a story about hypnotism. One of the illustrations is a drawing of a face with big, round, hypnotic eyes and circles spreading out from the

[*Continued on page* 31]

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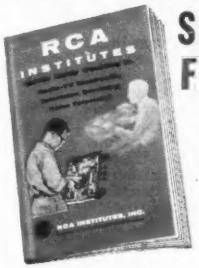

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Invention Clinic

Joseph H. Kraus

In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.

Drill Press Layout Attachment

Nathan Zanger of Brooklyn, N. Y., has built a tool attachment which is fastened to a drill press and is used for spotting and drilling within a tolerance of .0005. It is direct reading. What is the feasibility and marketability of this tool?

You already have established that the tool is highly workable and given to great accuracy for jig drilling. Its marketability depends largely on what company produces the attachment, its sales effort and whether or not a demand for such a tool can be sustained. Although your photograph is sharp, it does not disclose complete details. We feel you should further investigate its potentials.

Paint Can Pouring Lip

John Damiano of Philadelphia, Pa., has designed a pouring lip to be attached to paint cans. Could this be used as an advertising medium for paint distributors? Would it be more profitable to sell this to one paint manufacturer or should he produce and sell it to a number of manufacturers?

First make sure that this device works as visualized. We are not at all convinced that it will remain in position either when the brush is pressed against it or when paint is poured from the can. The design is simple enough for you to make and test. Try it again on the same can after you have set it aside for a week or so. If it functions perfectly—not just once in a while—the best potential might be to sell it directly to paint stores.

Micrometer Depth Gauge

Henry Hummel of New York, N. Y., has redesigned a depth gauge to eliminate the graduations on the sleeve and give a visible reading from zero up. Is there a similar gauge on the market? Would a manufacturer be interested? Is the idea patentable? Would a patent be sufficient for selling the idea?

As you did not furnish a diagram, it is difficult to answer your questions. Doubtless most of your queries would be answered if you got a report on a patent search. The potential for selling the patent will depend on the quality of your gauge, its readability, accuracy and ease of construction.

Exit or Entrance Gate

Emzy Cooper of Georgetown, Texas, has designed a gate which will eliminate the need for a live guard at the entrance or exit. It permits only one person at a time to pass through the gate. From the broad terms and principles involved, is this item patentable and/or marketable?

You certainly cannot hope to get any patent protection on the basis of such broad concepts. There are dozens of these one-way gates and most of them are not completely

[*Continued on page* 24]

INVENTOR'S TIP OF THE MONTH

Golf ball standards are usually maintained at a rather constant level. The United States Golf Association rules specify that a well-hit ball shall not travel more than 250 feet per second, corresponding to a 250-yard drive. Balls with more bounce to the ounce than this may not be used. What is needed is a simple portable machine which will allow golf officials to test accurately every ball used at championship tournaments to make sure it has no "rabbit" in it.

INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for patent.

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Invention Clinic

[*Continued from page* 12]

satisfactory. Marketability will depend on what you have to offer. You have disclosed nothing valuable.

"*Busy Bee*" *Toy*

Alvie Carter of Salt Lake City, Utah, sends a copy of his patent application for a toy comprising an artificial plant in a flower pot. A bee circles around the flower, gradually moves down to the flower, then circles away again. Two toy manufacturers have rejected it.

This is a difficult toy to market. It is doubtful that its present design can be sold at the $2.00 price you mentioned. This means a manufacturing cost of around 35 cents. A more random flight, combined with a buzzing noise might add to its attractiveness. There also is some doubt that a bee is the best choice. A humming bird might be a better one. Something might also be added to make this more useful. Perhaps it could be given an "air wick" value.

Rotary Internal Combustion Engine

Basil H. Dib of Beirut, Lebanon, says he has a rotary internal combustion engine which he feels has distinct advantages over any existing engine. Automobile companies give no reasons for rejection of the idea. "It is discouraging the way they condemn the inventor." What is wrong with this design?

You will need to do more than merely produce a plastic model and present drawings if you expect to win interest. At present you do not even know if your design will work. You have no information about its efficiency. You

[*Continued on page* 26]

INVENTORS
I shall be pleased to furnish you, upon request, with information relative to patent procedure—without any obligation on your part.
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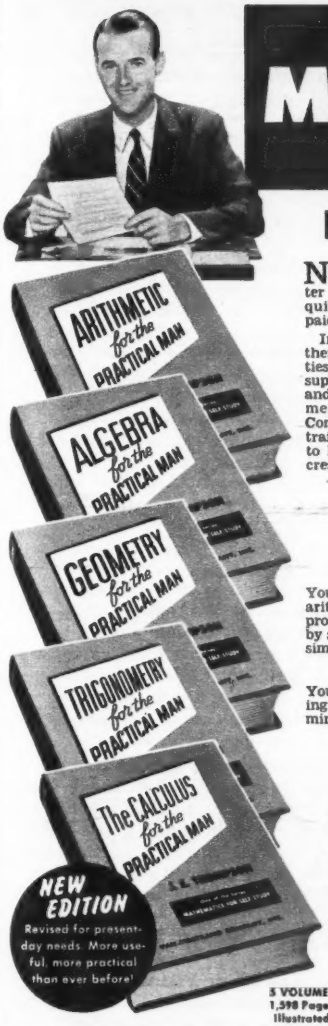

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Invention Clinic

[*Continued from page 24*]

cannot expect companies to pay their engineers to investigate ideas which are sent to them and which give no evidence to support their claims. The design on which you have been working may already be patented. We recommend a search, then an experimental model to prove the advantages which you claim, if any.

Combination Pocket Unit

Jule Kemp of Cincinnati, Ohio, sends diagrams of a multicraft pencil which combines seven items in one unit. A patent search report seems promising. Is this marketable? Would it be acceptable to the public? What manufacturer would be interested?

Generally, most small combination items do none of their jobs well. At best they are a compromise. This is the way we look at this item. However, it is marketable. The problem is to locate a manufacturer. A manufacturer of novelties might be interested but it will not be easy to sell him.

Slow-Down Light

Joseph L. Adams of Wakefield, R. I., has designed a light circuit which flashes when the foot is taken off an auto's accelerator. He feels that this will give adequate warning even if the brake is not applied. Do we know of any company which will purchase this "brainstorm?"

Some years ago a similar device was marketed and made its appearance on many cars. A small traffic light was hung in the rear window and showed red, yellow and green lights. In several states its use was forbidden. Hence it is unlikely that any company would be interested in trying to market a similar item.

Cigarette Snuffer

Stephen Smith of White Plains, N. Y., sends a model of a cigarette snuffer. Can this be put on the market without a patent? "It should have a good sale because of the present litterbug campaigns in some cities." Would it be possible to interest a manufacturer?

There is no reason to make the item of plastic. Metal is less expensive. And there are hundreds of possible designs for items which have the same purpose, many of which would be received with greater favor than your proposal. In fact, many years ago, they were used by "traveling gentlemen." You might try to see what you can do with this item. But don't risk the money for a patent. •

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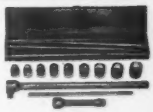

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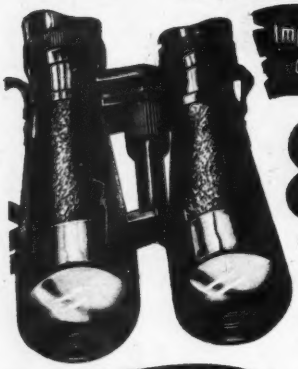

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$1 Worth of Materials Brings You $18—You pocket the profits!

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If you've ever touched real suede or velvet – you know how Flok-Kraft feels and looks. Now, at last this beautiful new 3-dimensional finish, developed after years of experience, can be sprayed on anything – transforming ordinary things into expensive masterpieces of beauty. You must see it to believe it, so mail coupon below and receive free samples.

Make old (even broken) radio and TV cabinets look better than new. Spray average size cabinet in 15 minutes with 34¢ worth materials and charge at least $10.00.

COVERS AND BEAUTIFIES FABRICS, METALS, GLASS, PLASTER, WOOD, PLASTIC – any surface! Huge profits are waiting to be tapped in this tremendous new field. Over 5,000 big profit uses. Spray lamps, figurines, greeting cards, signs, automobile accessories, shoes, hats, card tables, toys, furniture, draperies, ceilings, walls –anything! Flok-Kraft makes old, damaged and worn objects beautiful and saleable–makes new things worth more. You can even spray cheap butcher paper and make it look like velvet-suede, and sell it for gift-wrapping paper.

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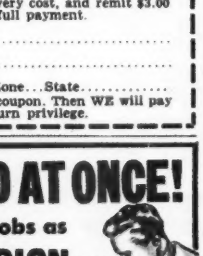

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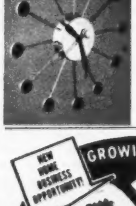

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HOW TO LEARN GROWING SECRETS + $ SEED

MINIATURE TREE NURSERIES, Dept. C-10
(HOME-GROWERS DIVISION) GARDENA, CALIFORNIA

Dear Editor

[*Continued from page* 18]

pupils. You suggest looking at the eyes while repeating a hypnotic formula. So I tried and all the time one question kept me from going into a trance. Is that the face of Fernandel, the French comedian?

Joe Powell
Cincinnati, Ohio

The resemblance is unintentional. As for a suspicious resemblance to another face, that of artist David Lockhart, we cannot say.

Every time I tried hypnotizing myself, I would get halfway into a trance and the telephone would ring.

Peggy Mercer
Cleveland, Ohio

• *Nice Story*

J. Robert Connor's article How To Be A Hobby Printer in your July 1957 issue inspired Robert J. Jaskovski of Shippenville, Pa., to buy a small printing outfit, join our association and print a lively and informative monthly paper.

This accomplishment is remarkable because Mr. Jaskovski, who spent five years in a German DP camp in preference to living under Russian rule in his native Latvia, has only a limited knowledge of our language.

In recognition of his successfully printing in spite of this obstacle, we have awarded him the title of Outstanding Amateur Journalist of 1958.

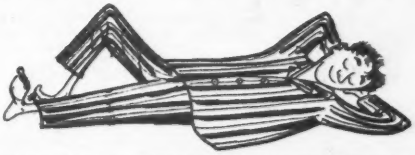
Emerson Duerr
President, National
Amateur Press Assn.
Elmhurst, Ill.

• *October Mystery*

Mr. Moneybags takes the same train home every night. It pulls into his suburban station at four p.m. exactly; at the same moment his chauffeur drives his car up to the station. Mr. M. hops off the train into his car and is driven directly home. One day he takes an earlier train, without phoning home, and arrives at the station at three p.m. He decides to walk home; on the way he meets his chauffeur coming to meet him as usual. The chauffeur stops, Mr. M hops in and they turn around and drive home, getting there 20 minutes early. How long had Mr. M. been walking?

[*Continued on page* 35]

Still dreaming about a good job and more pay?



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PRACTICAL NEW WAY TO TRAIN AT HOME

Don't rely on *luck* to make your dreams come true! Be practical and depend on *training*. As a skilled man, you can earn up to $125 a week and more—enjoy security—and even open a shop. Your best bet is to become an auto mechanic. *That's the big opportunity field today.* Over 60 million cars and trucks are on the road, and all require maintenance. At least one-third are in the heavy-repair class. There's so much work that 50,000 mechanics are needed! It's easy to learn this trade at home. Find out *how* by mailing coupon below.

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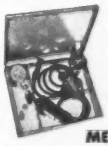

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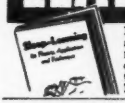

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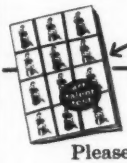

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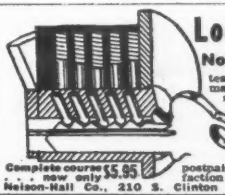

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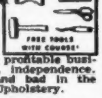

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Dear Editor

[*Continued from page* 31]

• *August Mystery Solved*

In a certain bank the positions of cashier, manager and teller are held by Brown, Jones and Smith, though not necessarily respectively. The teller, who is an only child, earns the least. Smith, who married Brown's sister, earns more than the manager. What position does each man fill? (From 101 Puzzles In Thought And Logic by C. R. Wylie, Jr., $1.00, Dover Publications, New York.)

Brown is the manager, Jones the teller and Smith the cashier.

Cliff Rhead
Denver, Colo. •

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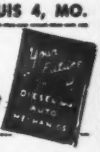

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Mail for McCahill

Uncle Tom is sorry he can't answer all his mail personally. In this column he'll answer the most interesting letters. Write to him at MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y.

● *You get my vote as the man I'd most like to see go to the moon. Any chance of signing you up?*

Sgt 1/c Spud Nick
Patrick AFB, Fla.

What an interesting name; Irish, no doubt. I'm afraid I can't warm up to the idea of going to the moon, as I'm still trying to figure out the best way to get to Wichita and back. Seriously, all this drive for outer space makes us seem a little silly not to have solved the problems of rats, mosquitoes, poison ivy and a million other pests of this old-fashioned earth.

● *This year I left my permanent anti-freeze in all summer. I believe you wrote an article once that this might be harmful. Am I right?*

L. L. Barnes
Minneapolis, Minn.

No major manufacturer of "permanent" anti-freeze (to date) recommends leaving the solution in your cooling system permanently. The reason is that when this solution is fresh it has an inhibitor in it which prevents the mixture from doing any harm to gaskets, metal surfaces, etc. This inhibitor—not the anti-freeze properties—wears very thin in time, leaving many metal surfaces wide open to harmful corrosion. Adding more and fresh inhibitor hasn't proven too successful. Your best bet, until a *really* permanent anti-freeze is found, is to use it one season only.

● *I heard somewhere that you once swam across Long Island Sound. If so, where from and where to? In a swim such as this (if you did make it) what's the most important thing to have—speed, endurance or a good swimming style?*

E. H. Graham
New Rochelle, N. Y.

I won a race across Long Island Sound from Sands Point to Larchmont (about eight miles) many years ago. My prime assets for accomplishing this were: A fair sense of direction and a generous quantity of that secret ingredient—stupidity.

● *After seeing the pictures of your Egg Harbor boat in MI, I'm trying to convince my wife we should buy one in order to save money, as I spend quite a lot on charter boats for deep-sea fishing. But I haven't been able to convince her as yet. Uncle Tom, give me one good clincher on my economy drive and I'll own a boat like yours. We've bought our cars now for a number of years on your advice so help me out, will you?*

Joe T. Henry
Washington, D. C.

Joe, I'd like to but the cheapest way to go deep-sea fishing is still on a charter boat—and you know it as well as I do. I've been deep-sea fishing on many privately-owned boats much bigger than mine, and rarely can you make a catch equal to that you'll get from a good charter boat with a top professional captain and mate. In fact, *The Rooster* is equipped with fishing chairs and rods, but when I want to do some real serious sail or marlin fishing I go down to my old pal, Lew Parkinson.

Lew runs the Sailfish Center in Palm Beach. I tie up *The Rooster* there and go out in his boat, *The Charmer*. He's got the right rigs, the right bait and most important of all, the know-how. Last year, Lew had three white marlin hooked simultaneously and he boated all three—a world's record! This called for professional skill from the baiting to the landing. If I had hooked three on *The Rooster* I'd probably have lost all of them, and I've been deep-sea fishing for over 30 years. Yes, Virginia, there is a Santa Claus, and Joe, buy the boat, but not on the strength of an economy pitch. Think up a better reason for doing it.

● *Having read your stuff for years, it seems to me you travel around the world as*

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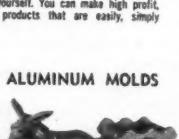

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much as Duncan Hines. As you always look well-fed, I bet you could make a mint doing a book on good restaurants throughout the country. In fact, you might print the names of a few of them in MI. I'm a steak man myself and would like to know various places where I can get a really good steak when I'm on the road. Most books on restaurants seem to be written for women and not for the steak-and-potatoes crowd.

Chas. T. Borden
Seattle, Wash.

I know what you mean. I've bought steaks in every state of the Union and always have one standard order, which goes, "Bring me the biggest and best steak in the house." But believe me, Charlie, there simply aren't enough really great eating places to make up a book for a real man's appetite. However, if some other readers would like a list of what *I* think are the greatest, we'll drop a few in here once in a while.

For a starter, *the* best roast beef in the United States is the "Texas Millionaire's Cut" at Johnston's Coffee Shop in Daytona Beach, Fla. *The* best steak in the world is the Chateaubriand aboard the Queen Mary (providing you have "seen" the dining room manager first). The New Weston Hotel in New York still serves *the* finest martini. If it's atmosphere plus good food you're looking for, the host in the white dentist suit, Herb McCarthy, at Bowden Square in Southampton, Long Island, will give it to you.

● *McCahill, you're a rat! In a recent issue of MI you advised a guy to marry a rich wife. I hooked onto this advice and did it. Maybe Abe Lincoln and George Washington got away with it but not me. She's mean. What's more, she made me go back to work. If I'd known I'd have to keep on working I could have married a good-looking one. The only one she gets along with is my mother and that's only because she's older than Mom.*

Your ex-reader,
Charlie, the Sucker
(postmarked "Miami," TM)

Always sorry to lose a high-class reader—but what the hell, we still have three left.

● *I had a disagreeable experience recently which I'd like your thoughts on. In a super-market parking lot I noticed a large car that had all its windows rolled up, with a dog inside, even though the outside air temperature was in the high 80s. The dog was obviously distressed, panting unnaturally, so I opened the door of the car to roll down the windows. The temperature inside this black*

[Continued on page 50]

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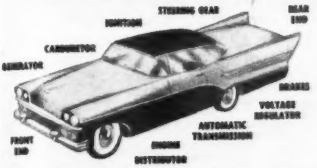

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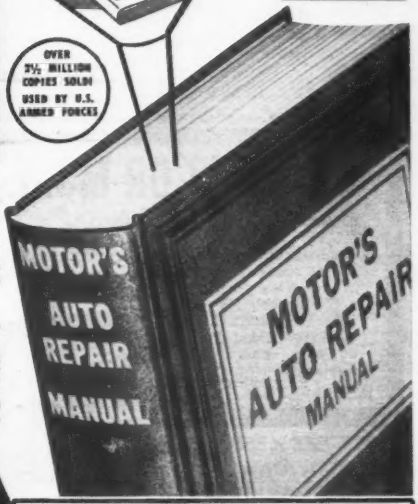

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[*Continued from page 48*]

car must have been more than 100°! I was pretty mad at an owner who would leave a dog to suffer under such conditions, but things didn't stop there. As I was rolling down the windows, the owner, a fat little woman, came out of the store and saw me and screamed for a cop. There happened to be one standing near by, so an embarrassing argument ensued which ended up at the local police station. Even though I explained what I was doing, the desk sergeant severely reprimanded me for tampering with other people's property and never once said anything to the woman about leaving her pet under such cruel circumstances. When I later reported this to the Humane Society, the only comment I got was, "It happens all the time." My question to you is this: Do you think I was wrong? What would you have done?

Mrs. Emma G.
Pasadena, Calif.

From your letter I can draw only one conclusion: The desk sergeant was a meathead and the dog owner was a real slob. If laws for tampering with other people's property were adhered to the letter, firemen would never attempt to put out a fire in a building that hadn't first been opened by the owner. There are 100 other screwy examples where emergency measures take precedent over the strictest letter of the law. I think the owner who left her dog in the car with all the windows closed tight in hot weather should have been tarred and feathered (also illegal, but I'll be glad to donate the tar). I would have (and have) done the same thing you did, and if the doors of the car were locked I'd have opened the windows with a rock or some similar object. Cruelty is also against the law.

● *My light-colored car has been pretty badly stained by the falling buds from poplar trees. How about printing a list of trees that are bad to park cars under?*

G. H. Friend
Trenton, N. J.

We can start the list off with falling trees.

● *My buddies and I got into quite a hassle the other night about tire pressures being built up by heat caused by high speed. It all started when I told them that while driving over the Indiana and Ohio Turnpikes during a hot day, I checked my tire pressure and found after about 200 miles they were all well over 40 pounds, though I had made sure at the start of the trip that the pressure was 28*

[*Continued on page 52*]

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United States Plywood Corporation MI10-58
Box 61, New York 46, N. Y.

Please send me:

☐ The new full-color booklet, "Family Rooms In Beautiful Weldwood—100 Interesting Ideas For The Room Your Family Lives In." Shows how you can build fun-giving, space-giving new value into your home. I enclose 10¢.

☐ Information on Weldwood Wood Finishes and Adhesives.

Name.....

Street.....

City.....**Zone**.....**State**.....

Mail For McCahill

[Continued from page 50]

pounds all around. I bled off enough air to bring them back to 28 pounds, but later that night I found the tires close to being flat. My pals tell me I should have left the tires alone, even though the pressure was over 40 pounds. Who is right?

A 1/c Donald R. Cripp
San Francisco, Calif.

Your pals were right. If your tire pressure was normal at the start of the trip, the heat expansion which brought the tire pressures to over 40 pounds created no danger whatsoever, providing your tires were in first-class condition. Old around-the-world skins might possibly blow, but not good tires. Most of the cars, even in 500-mile stock car races, start off with 50 or more pounds in each tire. I have personally had tires go as high as 70-plus pounds at the end of a high-speed run. This *only* pertains to first-line tires in top condition! Disregard this if you're riding around on a beaten set of rubber-dipped cords.

● *I have a '50 Olds which has a little carburetor trouble. With your help I think this problem can be solved. In the past six months I've tried four different carburetors. Yet each time the motor is stopped, the gas seems to seep down onto the throttle valve and out along the throttle shaft to the outside of the carburetor. This, I think, causes a flooded condition and hard starting. I would appreciate it if you could give me any possible remedy for this problem.*

Donald Clark
New Britain, Conn.

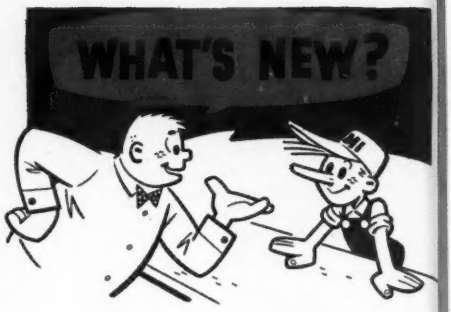
If you've had four different carburetors on your car and they've all done the same thing, you must have a fuel pump belting the gas up there with enough pressure to launch another Sputnik. The chances of your getting four carburetors in a row with weak needle and seats or worn butterfly shaft bushing are about one in 5,000,000. Are you *sure* you've had four *new* carburetors? When I was connected with the carburetor business years ago I could yank off an old pot, give it a sandblast and a wire brush treatment and you couldn't have told it from a brand-new one.

● *Do you think all this H-bomb testing is responsible for all this lousy weather we've been having? What's your opinion?*

Paul L. Holmes
Toledo, Ohio

Frankly, I don't know. I heard one top government meteorologist asked the same question on a TV show, and his answer was, "Frankly, I don't know."

—*Tom McCahill*



Engineers, draftsmen and plant and office executives will receive a free, pocket-size circular slide rule if they send their request on letterhead stationery to General Industrial Co., 5738 Elston Ave., Chicago 30, Ill.

A colorful brochure on Weldwood textured wood wall paneling containing ideas for interiors plus installation and finishing data, can be had for the asking by writing to Nancy Stuart, United States Plywood Corp., 55 West 44th St., New York 36, N. Y.

Users of Kodachrome film can now mail their exposed film directly to a Kodak laboratory for processing and have it returned directly to them by first-class mail. For further information see your Kodak dealer or write Eastman Kodak Co., Editorial Service Bureau, Rochester 4, N. Y.

They're going fast, so write now for your free copy of 6 Ways To Have Fun At Home With Sakrete Ready-To-Use Cement Mixes which includes illustrated plans for half a dozen easy-to-build projects. Address requests to Sakrete, Inc., Box 11, Cincinnati 17, Ohio.

A new booklet giving step-by-step instructions for installing Fiberglas acoustical ceiling tile is available without cost from Owens-Corning Fiberglas Corp., Acoustical Division, National Bank Bldg., Toledo 1, Ohio. It's title?—If Noise Annoys An Oyster.

Editing For Better Movies is a 32-page booklet that offers a complete short course in film editing. For a limited time only, this fifty-cent booklet will be sent free to those requesting it from Reader's Service Dept., The Kalart Co., Plainville, Conn. Enclose 10c to cover postage and handling.—*DH*

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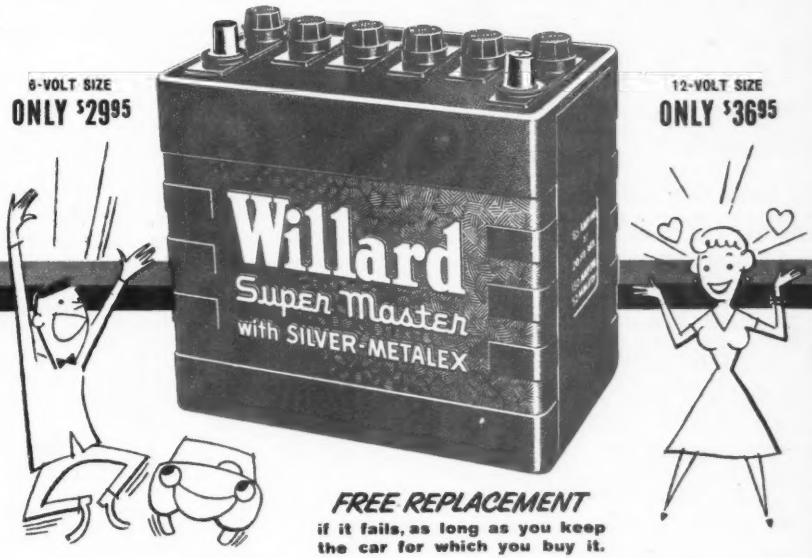

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if it fails, as long as you keep the car for which you buy it.

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If your Willard Super Master is one of those called in for laboratory inspection by Willard Engineers, your purchase price will be refunded—and in addition you will also get a new Willard Super Master FREE.

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—because you lack a HIGH SCHOOL DIPLOMA

• You can qualify for an American School Diploma *in spare time at home!* If you have left school, write or mail coupon for FREE booklet that tells how. No obligation of any kind.

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Please send FREE High School booklet.

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EXCITING SHORT CUT TO BIG-PAY CAREERS Ham radio opens door to important jobs in armed services, missile development, TV, radio. Many radio "hams" now *top executives* in electronics, related industries. Gov't careers, too! Start *now*. No previous experience needed. Amazing new "do-it-yourself" technique makes everything *easy*, prepares you *twice as fast!* Includes parts to build your own set. Send for FREE BOOK *today sure*. Get thrilling facts that may change your whole life.

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HAM RADIO NETWORK, Dept. 9-15A, 1038 S. La Brea, Los Angeles 19, Calif.

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4-INCH BLADE

We give you handiest hunting and fishing knife you've ever had! Has 4-INCH LONG highly tempered steel blade—VERY SHARP! Attractive handle. We send knife FREE to acquaint you with our below-wholesale bargains. Please send 25c for handling. NO LIMIT—but send 25c handling for each knife. Order TODAY! HUNTING KNIFE, Dept. K-340, Box 881, St. Louis, Mo.

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Obtain a Ps.D., Ms.D., D.D., or Ph.D. Be a Teacher, Lecturer or Accredited Practitioner. Teach others how to achieve Health, Happiness and Contentment. Chartered by State. Correspondence Courses only. Write for FREE book telling how.

THE NEOTARIAN FELLOWSHIP
Desk 3, Pickwick Building Kansas City 6, Missouri

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Good News! Now you can repair them at home in 10 minutes. **$1.98** P. Pd.

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Amazingly easy-PLATE-WELD repairs broken plates (clear or pink) and replaces teeth. Simply flow on broken edges and put together. So dependable this material used by dentists. Enough for many repairs. No special tools needed. Full instructions. Money back guarantee. Order PLATE-WELD now and get at no extra cost plate cleaner and polish. All 3 items sent day order received. Send $1.98 (no C.O.D.) to

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FLY YOUR OWN *Bensen* HELICOPTER

Simple to fly — build it yourself, with engine or as inexpensive glider type which can be mounted on floats or boat. Order 3-view drawing, specs and photo of Glider for $1 or motor powered Gyro-Copter $2. Ask about detailed plans and construction kits.

Send $1 or $2

BENSEN AIRCRAFT CORP., Dept. M1-108
P. O. Box 2746 Raleigh, N. C.

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Address _____

Not everyone does as well, but T. N. CODY, who started a business of his own, reports...

For 12 months I've averaged

$800 PER MONTH INCOME

—most of it clear profit for me!

Many men have discovered how to be independent, to be free of layoffs and bosses. C. G. Naples grossed more than $200 his first week. A father-son combination grossed $44,000 their second year. H. Lemon says, "*I netted $133 in one 8-hour day.*"

How much you make depends largely on you. You need no special skill, no large investment. Start part time if you wish.

NO SHOP NECESSARY • Our Electric Deterger shampoos rugs, carpets right on floor—removes dirt and grime and helps to show their natural color and beauty. So efficient and safe it is used by largest railroads and hotels.

This is not a lease proposition. *You own the machine, you work when and where you please and all the money you take in is your own. You take no risk. Machines fully guaranteed.*

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Without obligation send me **FREE** booklet about your RUG DETERGER and tell me how I can start *my own* permanent, profitable business.

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YOU CAN MAKE MONEY MAKING CASES....

'CAUSE WE HELP YOU SELL 'EM

I'll teach you all the secrets of manufacturing cases in your home. Cases for salesmen, doctors, scientists, manufacturers, hi-fi bugs, camera enthusiasts, sportsmen, etc. You'll be able to fill the increasing demand for custom made cases — for luggage repairs. Yes! You'll be able to make extra money for yourself, for your family — for all your extra needs.

Work sparetime at first — then build up to full time making cases — making money. I'll help you with every bit of Sales Assistance at my command — with National Advertising to help bring orders to you, wherever you live. Write TODAY, for full FREE details about our no risk plan.

ABARSI CASECRAFT 807 SUNSET BOULEVARD Dept. C-10, Los Angeles 12, Calif.

Get into.. PLASTIC LAMINATING AT HOME!

THIS MAN..

... is taking out of the machine a Plastic Sealing Job — ordered by mail—only 11c in material cost brings back $2.58 in cash by mail. Capacity of machine: $25.00 profit per hour of operation.

Make up to $5 an Hour.. MAGIC MAIL PLAN!

Get ORDERS and CASH from your mailbox—do work in SPARE TIME at home —or expand into FULL TIME business. Send coupon for Free facts about the newest and most fascinating of all home operated businesses. For the first time a simplified machine brings the fabulous profits of Plastic Sealing and Plastic Laminating within the reach of the small operator. Anyone can learn to operate the machine with a few minutes practice —then with our Magic Mail Plan can get mail orders pouring in daily with cash in every envelope. No canvassing—no selling. We even supply the circulars you mail to bring back cash and orders. Don't waste a minute. Rush your name. We'll send you FREE and postpaid pictures, prices, details, and all the facts you need to start. Mail coupon or send name on postcard. No charge.

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Make Thousands of Beautiful Art Creations
COSTUME JEWELRY • CIGARETTE BOXES
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University P·S·E

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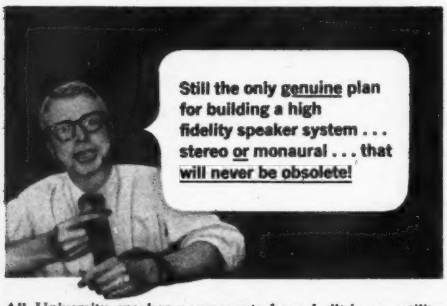

All University speaker components have built-in versatility. The world's widest range of dual impedance and adjustable response woofers . . . speakers for use as mid-range and/or treble response . . . adjustable networks . . . all guard against obsolescence. Start as modestly as you like—with one extended range speaker for monaural or two for stereo—and as your budget permits, add complementary speakers until you achieve your ultimate aspirations. *At every stage, your original speaker(s) remains an integral part of your system.* Send for this *free* P·S·E booklet. It lists many popular systems you can build the P·S·E way, plus complete data on all University speakers, networks, enclosures and enclosure kits. Write Desk F-2, University Loudspeakers, Inc., 80 South Kensico Avenue, White Plains, N. Y.

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INDIANA TECHNICAL COLLEGE

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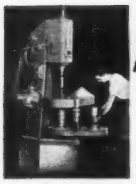

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Ready-made markets await local manufacturers of concrete drain tile. Every year demand is greater than production.

With a Champion machine you can convert $21.50 worth of sand and cement into 1000 4' superfine concrete drain tile, and at $80.00 you can undersell ordinary clay tile. You have both quality and price in your favor. The Champion makes all sizes from 3" to 12" diameter; 1-man operation with automatic feeder. Requires no special building—no skilled labor. Moderate investment, with 3 years to pay. Write at once for the Champion Book.

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A book everyone who likes to draw should have. It is free; no obligation. Simply address FREE BOOK

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HYDRAULIC JACK REPAIRS

Earn While You Learn at Home

Millions of jacks in gas & auto-service stations, truckers, body-shops, rippers, factories, farms need servicing. We show you HOW—easy step by step directions—what tools to use. EARN UP TO $5 an hour, in spare time, in your own basement or garage. Start your own business NOW.

Write for folder No. MI-10 & free bonus offer

Institute of Hydraulic Jack Repair
P.O. Box 50, Bloomfield, N. J.

New Table Top Invention Puts You In...

PROFITABLE RUBBER STAMP BUSINESS

Home Operators now make $9.40 AN HOUR in business once monopolized by a few big companies

Special rubber stamps bring high prices—cost only pennies to make on new, low-cost table top machine. Take 27 cents worth of material, make perfect stamps, the kind businesses and offices now buy by the dozen at $1.80 each. Make up to $9.40 an hour. Start in spare time in your own home. Run machine on kitchen table using ordinary electrical outlet. Make any kind of stamp. We'll send you free information without obligation about this established, highly profitable business, now open to individuals for the first time. For free information send name today on a post card to

Rubber Stamp Div., 1512 Jarvis Ave., Dept. R-4-L, Chicago 26, Ill.

A number of one-man mail order enterprises are paying their owners an income of $40,000 to $50,000.

OPPORTUNITIES

special feature

Mail order is big business. Annual catalog sales volume of Sears, Roebuck and Co. is over 700 million dollars!

HOW TO START

Your Own Mail Order Business

By John Winkler

You can make a fortune by mail. New firms will set you up in a fabulous mail order business of your own! They'll make up your catalogs, prepare your advertising, supply mailing lists and even ship your products for you!

When Arthur Johnson decided to earn some extra cash during his spare time he chose the mail order business because it could be run right from his own home. He reasoned that it was one of the few fields still open in which you could start your own business with a minimum of capital. In fact, his total investment was less than $100.00.

(Advertisement)

Witness the success of Arthur Johnson. He obtained a franchise from Mail Order Associates and within three months the profits started pouring in.

What began as a spare time job mushroomed into a profitable full-time business.

How successful was Johnson? Well, he drives a Cadillac convertible, owns a home in Nevada and a summer place in Florida, with a Cris-Craft cruiser to boot!

No, Johnson didn't find Uranium or answer the $64,000 question. He simply cashed in on the fabulous mail order business—with the help of one of the new mail order organizations which back enterprising new comers to the mail order business.

Like so many other beginners in this field, Johnson was plagued with the problem of finding the 'ideal' mail order product. One that would have a large market, offer a good profit margin, bring repeat sales, and one which could be easily shipped by mail. After reading several books and courses on the subject, it seemed impossible. In order to obtain wholesale prices from manufacturers he had to purchase large quantities, which meant all his capital would be spent in inventory. The additional cost of sales letters and advertising and the risk of picking a poor mail order product and being stuck with all that merchandise made it even more obvious he'd have little chance of success.

Then he heard about Mail Order Associates of Maywood, New Jersey—an organization set up to aid the small mail order operator.

He wrote to M.O.A. for full information, sent in his application for a franchise and within three months the profits started pouring in.

Johnson attributes his success to the large selection of novel and unusual mail order products carried by M.O.A.

Mail Order Associates is one of the few new pioneers in the fabulous mail order business. One of the first organizations formed to put the small mail order operator in business—big business, they fill a definite need for the beginner with little capital. Here's what they offer you:

(1) Complete, ready-to-mail catalogs printed with your name and address . . . in any quantity you wish. Catalogs, sales letters or self mailers may be based on any of the following typical categories:

BABY GIFTS AND NOVELTIES
VITAMINS
INSTRUCTION BOOKLETS AND COURSES
COSMETICS

You select your own market.

(2) Profits range from 50% to 150% on most items. For example, you may sell a $20.00 mail order course and make $10.00 on each sale. Or you sell two appliances at a discount, give one away free and still make a 50% overall profit!

(3) Everything is drop-shipped for you. You have no merchandise to carry—no capital tied up in inventory. All merchandise is stocked and shipped for you by Mail Order Associates or the manufacturer. You forward orders and your own shipping labels to M.O.A. and all merchandise is sent direct to your customer—using YOUR OWN LABEL.

(4) Up to date mailing lists are made available to you. Lists of proven mail order buyers are compiled for the market you select. Records are kept so that no two distributors use the same names. All names are supplied on gummed labels—all you do is apply them to your catalogs.

(5) A consultation service is provided to answer any questions you may have. In addition, you're supplied with a list of leading national magazines that provide free editorial write-ups. You're even given form letters to use to obtain free advertising of your products from these magazines.

(6) Your choice of at least four new mail order programs during the year. One may be a catalog of baby items, another on household gadgets, etc. You may select one or as many as you can handle.

Here's how they operate: Unlike the individual mail order dealer who looks for the ideal product, M.O.A. searches the market first! After making surveys and tests to determine a profitable mail order market, they select the products to suit the market. For example, the market of selling baby items to new mothers is a big one. Over four million babies are born in the U. S. each year. This is the first step in selecting a mass market for their franchised dealers. Then comes the selection of products to suit this market. They contact every manufacturer of products sold to new mothers. From thousands of items offered by various companies, only those suit-

(Advertisement)

able for mail order are selected for preliminary tests. The final survey is made for new novelties and products not yet manufactured! If they feel certain ideas for new products have merit, they'll manufacture the items on a royalty basis and produce them for their dealers exclusively!

From this preliminary selection of new mail order products suited to this particular market, they make actual tests to see which items will sell and produce the greatest profit

The thrill of receiving money in your morning mail is one you'll never tire of.

for their franchised dealers. Having finally selected the best products they begin layout and artwork on a new mail order catalog for their dealers. The final catalog may consist of a small 6 x 9 brochure, a large 8½ x 11 illustrated booklet or even a small one page self-mailer, depending upon the market and selection of products. Sales letters are prepared by experienced copy writers, and the complete job—layout, copy and printing is done by experts to produce professional results.

By purchasing merchandise in large quantities and running catalogs on large presses, they are able to offer their dealers complete backing at a fraction of the cost the individual would have to pay for the same job.

The final step is to supply the franchised dealers with names of prospective customers! In this particular example, they would make available the names and addresses of over 7000 new mothers every day!

Although many mail order firms use magazines and newspapers to advertise single items, the larger established firms have proven that direct mailings to prospective customers and previous mail order buyers is far more profitable.

A notice is then sent to all franchise holders explaining in detail the complete sales program for the particular market covered. The dealers then have the option to accept the offer or wait for a complete new sales program set up for a new market. At least four complete new sales programs are prepared by Mail Order Associates each year.

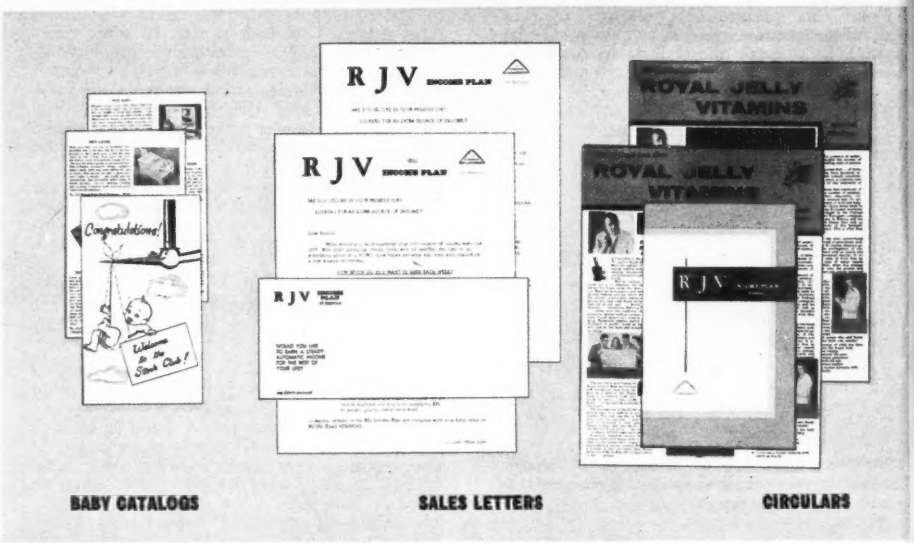
If the dealer decides to go ahead he may begin ordering catalogs (his personal name or business name is printed on all sales literature), and mailing them to his lists of prospective customers. As he receives orders for merchandise he simply forwards the orders together with addressed shipping labels to M.O.A. and they fill the orders and mail direct to his customers with the dealer's shipping label attached to each parcel. In some cases M.O.A. prepares a catalog of merchandise which manufacturers have agreed to drop-ship for the dealer. Mail Order Associates simply turns over this list of firms to the dealer and he works directly with the manufacturer. The customer pays the dealer the retail price of each item in the catalog. The dealer in turn pays M.O.A. or the manufacturer only the wholesale price of each item and pockets the difference—which really adds up when you mail a few hundred catalogs a week.

The operation of Mail Order Associates is based on a small margin or profit, but tremendous volume, which spells BIG PROFITS FOR ITS FRANCHISED DEALERS.

According to the U. S. Dept. of Commerce, "There is hardly another occupation that requires so little capital as does a small specialized Mail Order business. A number of Mail Order successes which piled up fortunes for the owners were started with very little capital. In each case, the proprietor began on a small scale and grew with the business." This same Government Report also states, "There are a large number of one-man mail order enterprises in this country which are paying their owners far more than a comfortable living. A number of the most successful obtain an income as high as $40,000 to $50,000." That's what the U. S. Government says about the mail order business!

Big firms will carry all stock for you. They ship orders direct to your customers using your own shipping labels.

Your OWN Catalogs of Top Mail Order Items!



Mail Order Associates will prepare your catalogs, write your sales letters, supply mailing lists and even ship merchandise for you, using your own shipping labels!

We don't say you'll be a mail order millionaire or another Sears & Roebuck, but if you're looking for a business of your own with a potential income of $50,000 per year the answer is mail order.

MAIL ORDER ASSOCIATES

Gilbert Turk, founder of Mail Order Associates, is certainly well qualified to head such an organization. Formerly president of two large mail order companies, his articles on selling by mail have appeared in national magazines throughout the country. He has sold everything from build-it-yourself plans to name brand appliances. When the paint-by-numbers fad was sweeping the country, he invented a three dimensional paint set which sold like wildfire. With Turk, Mail Order is almost an obsession. He thinks, talks and lives it.

Firmly convinced that no other business offers the tremendous opportunities of mail order he is an outspoken advocate of the man or woman who wants to start in business for himself. As Turk puts it, "By all means, start your own business and start TODAY! If you want security, independence and a chance to hit the jackpot, make your choice Mail Order. There's nothing like it. Absolutely nothing!"

FOR FREE DETAILS

Mail coupon below today

Mr. Gilbert Turk, Pres.
MAIL ORDER ASSOCIATES
Dept. M-74, 130 W. Pleasant Ave., Maywood 74, N. J.

Dear Mr. Turk:
The co-operative dealer franchise plan with Mail Order Associates sounds exactly like the kind of lifetime business of my own I want to establish. Please send me complete FREE details on how I can get my own franchised dealership.

NAME .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....

(Advertisement)

January • February • March • April
May • June • July • August
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Mechanix Illustrated

1958

McCAHILL TESTS

THE '59 BUICK

CONTINUED . . .

". . . this '59 car is by far the best Buick that has ever been built" says Uncle Tom of General Motors' all-new, high-styled, 122-mph offering.

By Tom McCahill

ONCE upon a time, probably not long after Aaron Burr whipped that hard fast one into Alex Hamilton's breadbasket, a General Motors copywriter dreamed up the phrase, "When Better Cars Are Built, Buick Will Build Them." This inspired slogan was bandied around for years and undoubtedly sold many cars. Without debating its accuracy I think the phrase could truthfully be revived and reworded to read, "When Better Buicks Are Built, 1959 Will Be The Year To Beat."

My test of Buick's new offerings for '59 was scheduled to be run on the GM Proving Grounds at Milford, Mich. To get inside these well-policed 3,985 acres may possibly be just a little tougher than getting through The Pearly Gates. You are signed in by regiments of guards (after your character has been attested to by a company official) and then (dig this!) a GM chauffeur is assigned to drive you, in your own automobile, to the Experimental Garage.

There I was met by Chief Engineer Oscar Kelley of the Buick Division. Now, I have learned from long experience that when the Chief Engineer of any car company comes out personally to brief me and escort me through a series of tests, that C.E. is pretty confident of his product. When I go to a factory and am greeted by the Corporal of the Third Team of Engineers, I have a pretty good idea that the new beauty is a pig and that the top boys haven't dared show their faces.

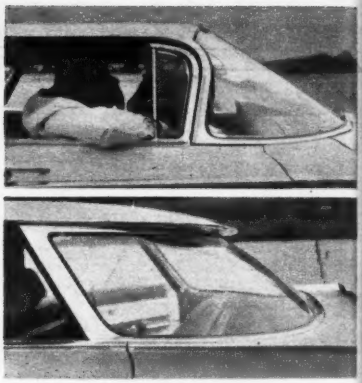
This time I got Oscar Kelley himself —the man on whose shoulders the success or failure of Buick squarely rests— and I clearly got the message that he and the rest of the men who designed it felt that the '59 car is head and shoulders better than any Buick the company has ever made. I might as well tell you right now—it is. So let's roll all the parts out on the table and take a closer look.

"BUICK is one hell of a road car with traction of a leech." Front coil springs, rear air suspension sop up the shocks.

STRIKING Invicta hardtop, above, replaces Century line. Man with Tom is Oscar Kelley, Buick chief engineer.

ALL-OUT effort went into tail fins which GM pioneered, then abandoned. Note back-up lights below bumper.

GRILLE'S canted headlights, chrome band anchored at rear fenders, big parking lights enhance all-new look.



"McCAHILL-TYPE hairline" is what Tom calls the exceedingly receding front and rear windshields. Novel sculpturing of chrome, at left, is a side view of the Buick's front fender.

TEST CAR SPECS

MODEL TESTED: **1959 Buick Invicta four-door hardtop**

ENGINE: **V8** cyls; **401** cubic ins; **325** brake hp; **445** ft-lbs max torque; **10.5** to **1** compression ratio. Bore **4.1875** ins; stroke **3.640** ins; Fuel required: **Premium.** Standard axle ratio: **3.23.** Wheelbase **123** ins; length **217.4** ins; height **57.1** ins; width **80.7** ins; front tread **62.4** ins; rear tread **60** ins. Weight **4,595** lbs. Gas tank capacity **20** gals. Turning circle diameter **44** ft. Tire size **7.60 X 15.**

PERFORMANCE: **0-30** mph, **3.4** secs; **0-50** mph, **6.7** secs; **0-60** mph, **9.5** secs; **0-70** mph, **12.4** secs; **40-60** mph, **5.3** secs. Top speed **122** mph. All times recorded on corrected speedometer.

The first thing I noticed about the '59 four-door hardtop Invicta—this year's name for the old Century which it replaces—was the suspension. The new Invicta which I tested had air suspension, a system about which I have not been boyishly gleeful in the past because it incorporated so many parts and factors that seemed to me to accomplish so little. This year's Buick air suspension, however, is unlike that of any other air-suspended cars of the past, most of which wobbled and waddled and took you through hard turns like a carelessly-made bowl of Jello.

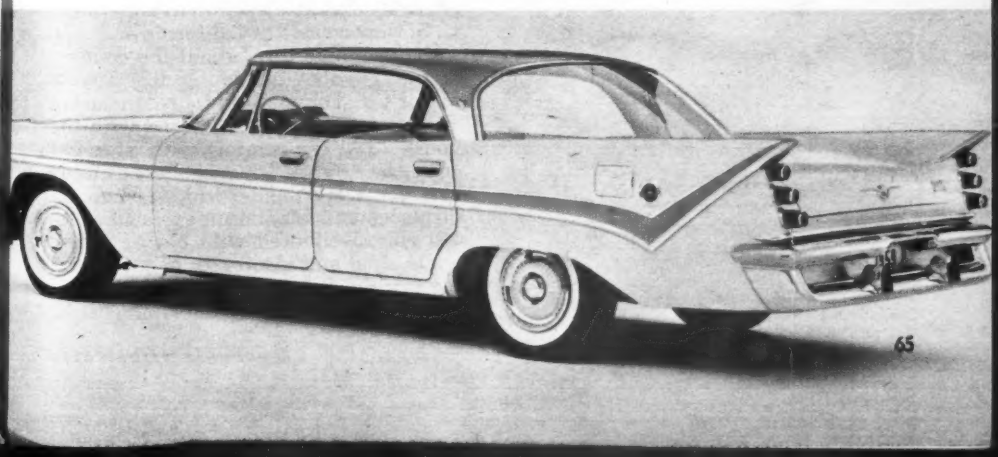
Perhaps the reason the new system is so greatly improved is that much of it has been eliminated. The Buick Air Ride for 1959 features two air bags in the rear and two good old-fashioned coil springs in the front. The front coil springs give the car the stability it needs in turns, bends and in braking. The rear air bags are there to sop up violent road shocks without losing the roadability properties of the whole car.

Another gimmick this year which has added to the surefootedness of the Buick is the increased width of the wheel tread. Also, Buick—along with all other GM cars for 1959—has reversed its attitude of a year or so ago and gone back whole-heartedly to fins. Tail fins, which have been joked about for several years, are more than just styling decorations. My old friend Doctor Kamm of Stuttgart, Germany, proved more than 20 years ago, with the Mercedes-Benz Grand Prix cars he designed, that fins could be a major factor in controlling the directional stability of any automobile going fast enough to squash a toad.

Many 1958 models abandoned fins [*Continued on page* 148]

The '59 De Soto

BIG, plush and brawny, DeSoto goes to bat with a redesigned front and rear end which emphasizes the car's width and lowness. At the ample forward end a narrow aluminum grille with horizontal lines span the top of the bumper below hooded dual headlights. The hood has a downward slope and a cheesecutter is perched on each front fender. Triple taillights sit under the tail fin tips. A new bar-type speedometer indicates green to 30 mph, yellow from 30 to 50, and red above 50. In order, DeSoto will come in Fireflite, Firesweep and Firedome lines with the posh Adventurer model at the top of the heap. Engines will range from 361 to 383 cu. in. with two and four-barrel carburetor options. •



NEW IMPORTS FOR '59

CLEAN LINES, modest use of chrome mark the Toyopet. Overall length is 168.7 in., wheelbase 99.6 in. Makers claim 30 mpg, 70 mph top speed.

ROOMY TRUNK holds spare, complete tools.

JAPAN is leading with a heavyweight in its first attempt to sell cars in the U. S. Now on sale in California and soon to be available throughout the country is the Toyopet, made by the Toyota Motor Co., Tokyo. Both four-door sedan and station wagon are offered with the boast: "Big car comfort with little car economy." The Toyopet has a four-cylinder, OHV engine with 88.66 cu. in. displacement. Maximum hp is 60 at 4,400 rpm. Delivered with heater, white walls, dual sun visors, set of tools, etc., the price in L.A. is $2,222, plus tax. •

LEGROOM (right and below right) is about the same as Rambler American. Novel door latches light up signal on dash if doors are not fully shut.

STATION WAGON has panel truck-type doors, hinged back seat. Instrumentation includes oil pressure gauge, water temperature, generator charge.

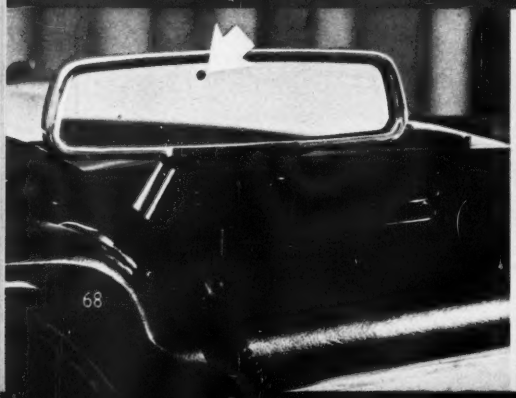
THE DATSUN

Another '59 Japanese entry is the Datsun, a four-door sedan with claimed 40 mpg gas economy. Engine is four-cylinder, OHV, water-cooled. The Datsun has 87-in. wheelbase. The price is expected to be about $1,800. Dealerships are being set up.

SWIVEL SEATS will be available on all Chrysler lines, except wagons. Weight-operated seat swings out when you push button, swivel your body. Outside of car, push button, swing it in or out with hand.

NEW ACCESSORIES FOR '59

MIRROR-MATIC rearview mirror for Chrysler-made cars has small hole in it (left). When high-beam lights of car behind you strike hole, electronic device on mirror's back (right) turns it to non-glare position and later returns it to former position automatically.



WORLD'S BEST TOP-SPINNERS

MALAYAN top makers and spinners are heroes. As they wind up their 12-pound tops on spinning ropes people watch their gestures and expressions with reverence. A crowd of Malayan gamblers waiting for a top to wobble—something that may not happen for 20 minutes—is a-quiver with excitement. A famous top, tipped with a diamond, once spun an hour and five minutes on plate glass. Experts show their skill by transferring tops from one precarious perch to another as the minutes spin away. •

Hunting WILD Turkey

By Wynn Davis

HUNTERS are often astonished to hear the wild turkey called our most challenging game bird—and frankly unbelieving when a reputable outdoorsman states that the turkey is harder to kill than deer, bear or elk. But such are the facts. A hunter may stalk all day through woods loaded with turkey and never see one. Turkeys can see a mile off and fade like shadows.

PROUD MOMENT: the author holds up a 12-lb. hen called up and shot in Pennsylvania.

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When I talk turkey I mean *wild* turkey, not the half-tame target encountered on some plantations and ranches. In hard-hunted turkey country such as Pennsylvania, where the seasonal limit is one bird per hunter and where 20,000 turkeys are bagged each year, this most American of birds is a first-class challenge to woodsmanship, stalking ability and marksmanship.

Turkey hunting today is available over most of the old range of the wild turkey, which was roughly from Maine to Florida and west to the Mississippi and the Ozarks, with some hunting to be had in Southwestern river bottoms and parts of the Rocky Mountains country. The deforestation by big lumber companies all but killed off this noble bird everywhere but in Pennsylvania and remote sections of the South. But forest and game conservation projects have brought him back wonderfully and today there is turkey hunting in states where it never amounted to much in the old days. The best way to get into turkey country, if you're not living there, is to write to state conservation departments. They can usually tell you whether or not there is turkey hunting in the state, where the flocks are, and how good the acorn, beech-nut and black cherry crops have been. Good turkey feed crops means good hunting.

This preliminary work is important. There is still more to do if you want to be a turkey hunter instead of a man plowing around with a gun. One of the most important—and most gratifying—aspects of turkey hunting is learning to call turkeys. And it's not too hard—you can learn the art so that you are actually better at it than some old timers, who often produce a good call without knowing what they're doing. I like to teach beginners with a box call. There are several good ones on the market but I generally use the Champion Turkey Caller made by C. M. Lynch of Birmingham, Ala. Mr. Lynch also sells an excellent recording of turkey calls and vocal instructions for using his box call. The beginner who practices faithfully for about 50 hours, an hour at a time, should master the art of turkey calling.

Besides a call, the hunter will need something to wear—and not only to preserve his modesty! Wear wool. Twigs whipping wool make noises like twigs whipping deerhide, a sound that puts no fright into a turkey. Never hunt turkey in chino or twill or any such hard-surfaced cloth. In the Eastern woods where there is a lot of pine, hemlock and laurel, dark green is the color for me. But some top turkey hunters wear army camouflage clothing with great success. If you are a paleface, wear mud, charcoal or some sort of neutral mask with eyes and mouth cut out; in the woods a white face is as jarring as a shotgun blast.

Guns and ammo: My advice for thickly wooded and brushy areas is the 12-gauge shotgun that will take ¾-inch magnum shells. Magnum load No. 6 shot have a lot of pellets that scatter into a close pattern even at 50 yards. No. 2 and even No. 4 shot have big holes in their pattern at 40 yards and over—holes big enough to miss a turkey's head. And the head is your target because a bird wounded in the body will escape to die in the woods.

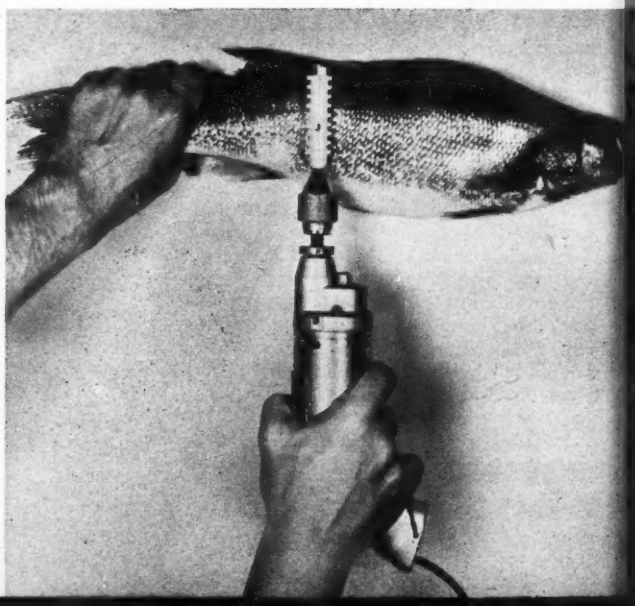
In the Southwest and in all areas with open woods and little brush the rifle is what the doctor ordered. And not just any rifle, unless you want to blow your target to pieces. My choice is the .22 Hornet with a four-power scope and an arm sling. You can't beat this rifle for turkey hunting in country where long shots are a must.

Once in turkey country, look for stands of oak, beech, black cherry and (in the South) chinquapin. Scratchings are the posi- [*Continued on page* 150]

A WISE HUNTER sits facing downhill, making no motion except to operate box call.

IT'S NEW!

AUSTIN-HEALY SPRITE, new British sports car, seats two, gets 35 mpg, tops at 80 mph. It has four cylinders, four speeds, costs $1795 F.O.B. New York without the little extras.



FISH SCALER to fit your power drill: the $2 answer to the scale-fearful fisherman's prayer. The nylon cylinder will not tear or harm the skin of fish or fisherman, but a child can clean fish like an Indian guide if Daddy will let him use his ¼" holemaker. Jaco Mfg. Co., P.O. Box 2659, Lakewood, Ohio.

PNEUMATIC SPLINT for first aid support to injured limbs is a new German gismo. Rigid frame contains four air cushions.

SIKORSKY S-62, first amphibious helicopter with flying boat hull, comes down with engines dead, rotors spinning freely.

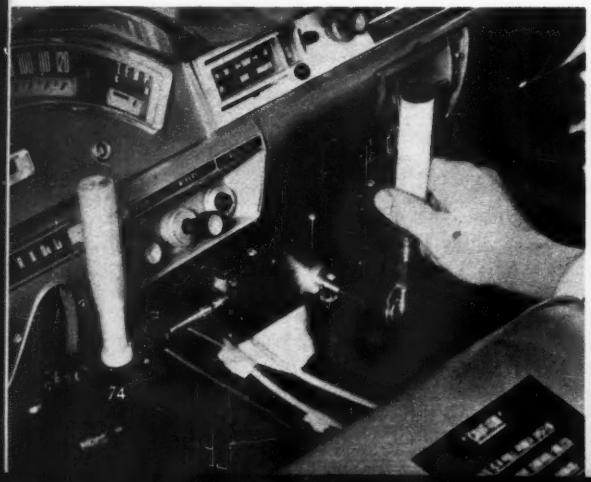
MUCH-BITTEN MAILMAN Charles Serven, Great Neck, N.Y., now carries battery-powered shocker for mean dogs. (Bottom right)

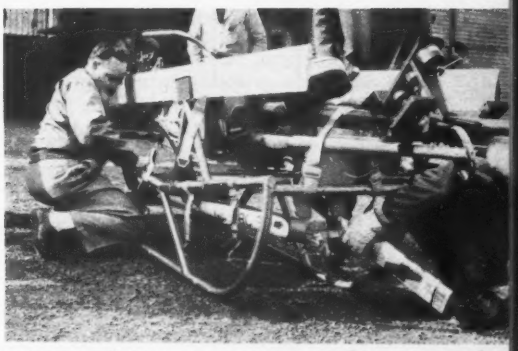
PLUG-IN TRAFFIC LIGHT, West German notion for controlling shifting metropolitan traffic patterns, fits into socket in pavement.

CONTINUED . . .

TRACKLESS TRAIN, R. G. LeTourneau development, can use an atomic power plant.

NEW STEERING GEARS aim at eliminating the dangerous shaft of the steering wheel, the "spear aimed at the driver's heart." Left, Ford's "joy stick"; right GM's Unicontrol system.





FLEXIBLE SIGNPOSTS that can give a little, can be bent right back up. Germans hope they'll save both money and lives.

COLLAPSIBLE COPTER (above, right) was put through its paces recently at the Issy-Les-Molyneux heliport in France. The Roto-Cycle is powered by a compact 45-hp motor and has a cruising speed of about 30 mph. It burns up 4.5 gallons of fuel an hour. Roto-Cycle can be collapsed and set up again easily in a matter of minutes.

CAR BODY that can be fitted on any motor scooter (according to its French inventor) is for socially ambitious, slightly demented scooter owners.

AUSTIN GYPSY, new explorer's rig, has rubber wheel suspension that needs no lubrication or care, can go 420 miles on a single tank of gas.

WHAT *You* WILL WEAR TOMORROW

By Lester David

MEN'S fashions, long noted for their sepulchral hues and funeral cut, are currently erupting in a major revolution of styles, colors and surprises. Gone are the days of the petrified collar and suits of "cast iron tweed." New fabrics, new fashions and new fads are the order of the day. Where will it all end?

We asked clothing and industrial designers, textile manufacturers and other experts to peer into their crystal balls and tell us what lies ahead in the field of male fashion. Here are some of their amazing answers:

For the immediate future the sunburst of color adopted a few short years ago will get even wilder. According to Baker Case of Hatton Case, a leading men's wear establishment in New York, waistcoats, Bermuda shorts, sport shirts, cabana outfits and swimming trunks will blaze even louder as the seasons go on.

In Hollywood, Sy Devore, who fashions suits for filmdom's top stars, has already removed breast pockets from men's suits because he claims they are totally unnecessary. He's even eliminated the lapel buttonhole. "Absolutely unneeded," he asserts.

Within the next few years, predicts Bert Bacharach, a leading authority on men's fashions, you may see the downfall of the Ivy League style. These slender, natural lines, he believes, are as much an exaggeration as the drape cut. Next step, he says, is moderate padding, a bit of a waistline and some semblance of a blade at the shoulders.

What about the distant future? The wonders will continue, experts claim, and before too many years have elapsed episodes like this one may be commonplace:

NET SUIT, with vital areas covered, would bring relief to long suffering males in torrid summer months.

A fellow is out to dinner with his best girl. While staring into her eyes, his hand trembles and a blob of gravy drops on his pants. He just lets it dry, then reaches into a pocket for an eraser and rubs out the spot!

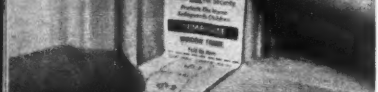
That evening, the same chap surveys himself in a mirror and decides he'd look better in narrower lapels. No fancy tailoring bills for him. He merely takes out a pair of scissors and snips his lapels to the desired width.

He is wearing paper clothes and they are only one of the long-range miracles of masculine [*Continued on page* 145]

PAPER SUITS which could be altered by scissors according to dictates of wearer, left, are foreseen by the experts. Built-in suit telephone, right, is a possibility.

MECHANIX ILLUSTRATED
BRIGHT IDEA AWARD

Window Lock

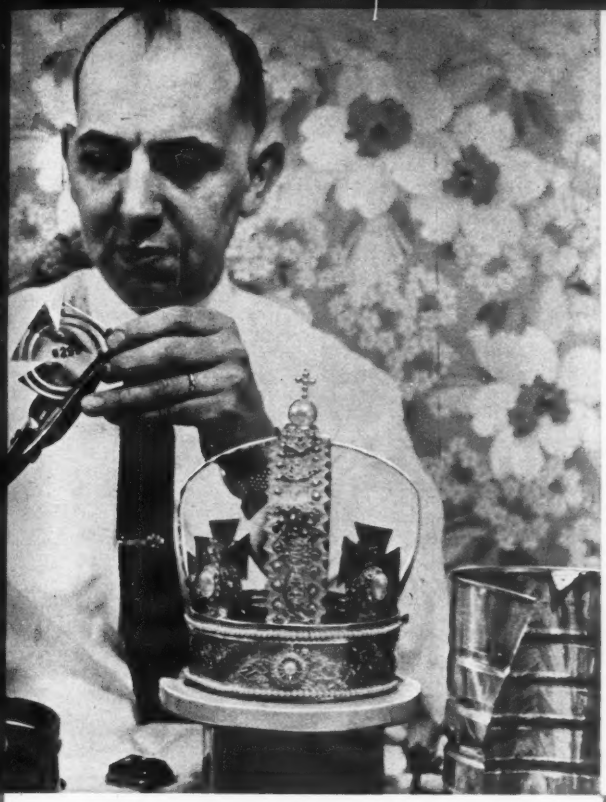


WIN $50

MI will award $50 each month to the first person who tells us of a new and useful gadget that is patented and in production. Manufacturers are also eligible for this award. Pictures and a description should be sent to Bright Ideas Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.

A BURGLARY a minute is our current rate, according to the FBI, and householders are looking to their locks. The vulnerable openings in most homes are the windows, so the Yale & Towne Manufacturing Co. has brought out a key-operated window lock for all types of double-hung wooden sash. It comes with a template and instructions for installing, costs about $1.85 at hardware, variety and department stores. •

INSTALLATION, using the instructions that come with the lock, is a simple matter. Key-operated lock can be inserted in upper hole to secure window while open.



TIN CAN JEWELS

MALTESE CROSSES for one of Stier's facsimiles are cut from the ends of democratic American cans.

YOUNG USURPER tries on copy of Queen Elizabeth's crown, finds it light but large. Original is heavy.

AUTHENTIC copies of European crown jewels, in tin and glass, are the hobby of Dick Stier of Bloomfield, N. J. Stier, himself of noble German descent, got on the kick watching the coronation of Elizabeth II, now has crown jewels of the czars, the Pope, German royalty—all meticulously copied in fruit can metal and junk gems. •

SLAVIC GAUDS copied by Stier include a Russian scepter, crowns of two Russian czars, of the czars of Kazan and of the kings of Serbia (left to right).

McCAHILL TESTS

THE INTERNATIONAL HARVESTER STATION WAGON

"The gutsiest, most practical wagon I've ever tested," says Chrome Dome.

By Tom McCahill

THE American station wagon has degenerated into a passenger car with little to make it stand out from other sedans. When Henry Ford first introduced his all-wood bodied station wagon, a Model T, it was the farmers' delight because it was just as useful for hauling a hog to slaughter as it was for dragging Auntie to church on Sunday. It was also one of the first snob vehicles for the suburbanite. In the '20s, commuting bankers and merchants were

PEEKABOO boys in rugged Travel-all wagon, above, are Paul Whiteman and Uncle Tom, who are also shown at left with Tom's champion Black Labrador named Boji.

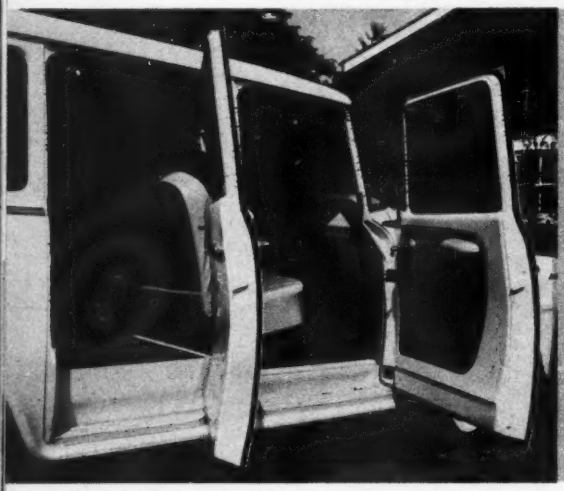
met at the train by station wagons and driven home to their country estates. All these vehicles had names painted on their highly-varnished side panels, such as Broken Back Farm, Seaweed-Haven-By-The-Sea, etc.

There is a big difference, however, between those wagons and today's crop.

DASH has no frills. Rig is available with two or four-wheel drive, automatic shift.

PAYLOAD is bigger in IH wagon with its higher roof and roomier interior.

GAS TANK filler cap is behind driver's-side rear door. Wide doors make entrance, exit easy. Seats don't fold flat, come out for big loads.



TEST CAR SPECS

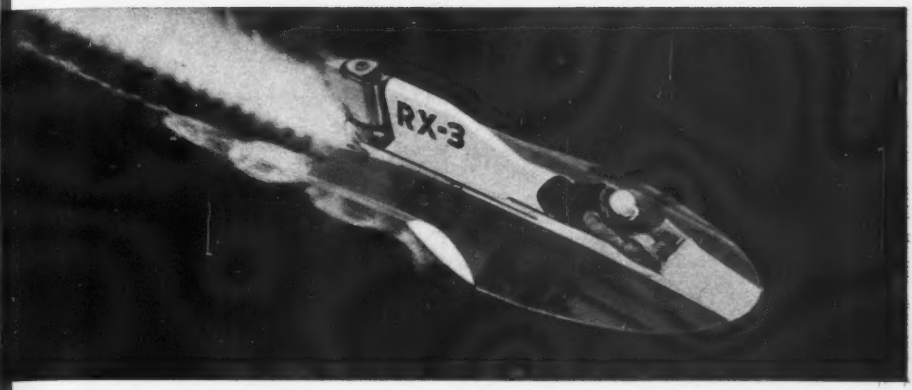
MODEL TESTED: **1958 International Harvester Travelall**
ENGINE: **OHV 6** cyls; **240** cubic ins; **140** brake hp; **223** ft-lbs max torque; **7.5** to 1 compression ratio. Bore **3.56** ins; stroke **4.02** ins; Fuel required: Regular. Standard axle ratio: **3.73.** Wheelbase **114** ins; length **202.43** ins; height **73.5** ins; width **76.68** ins; front tread **60.8** ins; rear tread **60.5** ins. Weight **4,035** lbs. Gas tank capacity **15** gals. Turning circle diameter **19.5** ft. Tire size **6.70 X 15.**
PRICE (without optionals): $2,392
PERFORMANCE: **0-30** mph, **5.2** secs; **0-60** mph, **17.3** secs; **40-60** mph, **8.2** secs. Top speed **80-plus** mph. All times recorded on corrected speedometer.

Back then, during the weekdays when the old man was in town building up his private mint, the wagon was used for hauling feed, yanking the kids to the beach and in some cases transporting garbage to the dump. In fact, it was an all-around little beaver capable of meeting every situation including taking a diamondback dowager to the Met.

Since the war, the streamlining of the wagon has reduced its usefulness to acting as a school bus for the kids or transporting very low dogs to shows. This transformation has upped the station wagon market ten fold because today's wagon can serve as a family car and, admittedly, it *is* still slightly more versatile than a five-passenger sedan for moving a thoroughly-plastered Irish uncle from saloon to deep freeze. There remains, however, a big market for an honest station wagon—and International Harvester has come up with the answer.

Gutty as a cornered crocodile and as rugged as a charging rhino, the International Harvester station wagon, available with either a two or four-wheel drive, is the answer for the man with hairy-chest problems. This job, known as the Travelall, would be as much at home on an African safari as on the prairie during roundup time. Around home, if you're the careless type, you could easily [*Continued on page* 152]

WORLD'S FASTEST OUTBOARD



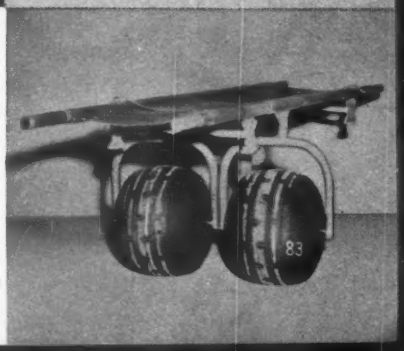
THIS specially-designed boat powered by a production 60-hp Mercury six-cylinder engine set a new world's speed record for outboards recently when it covered the one-kilometer course over Seattle's Lake Washington at an average speed of 107.821 mph—the highest speed ever attained by an outboard-powered boat. Hugh Entrop drove as the Union of International Motorboating (UIM) Class X Outboard Hydro world mark was brought to the U. S. for the first time since 1937. •

One-Man Ambulance

CARRIER eases chore of moving disaster victims.

AMBULITTER rolls easily over the toughest terrain.

AMBULITTER consists of a pair of lightweight low pressure pneumatic rollers in a frame which can be attached to a standard Army litter. It is designed for the easy removal of casualties from almost any kind of rugged terrain. Ambulitter Corp., Chestertown, Md., makes the carrier. •



EYE STOPPERS

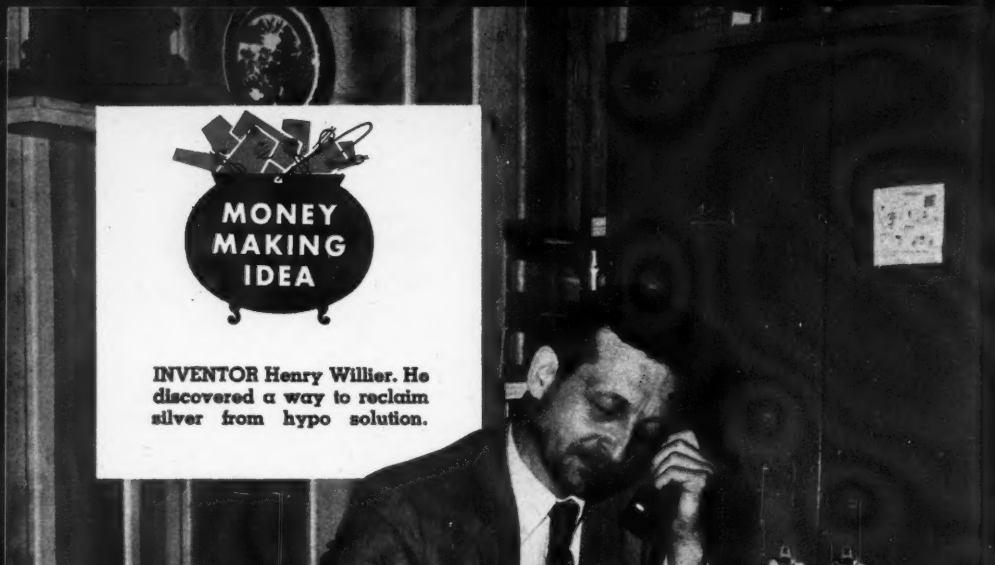
HOT DOG cools off with special sunshade which is secured by reflective aluminum sheet harness. Pooch hails from London.

EYEBALL POPPER is actress Sandra Giles' fur-coated 'T-Bird. What happens when it rains?

GENTLE SQUEEZE begets milk as fresh as any udder from unique squirt apparatus. It is located in coffee bar in merry England.

STOGIE PARKER in Holland art gallery allows pure Havana lovers to store rope, pick it up after seeing exhibit.

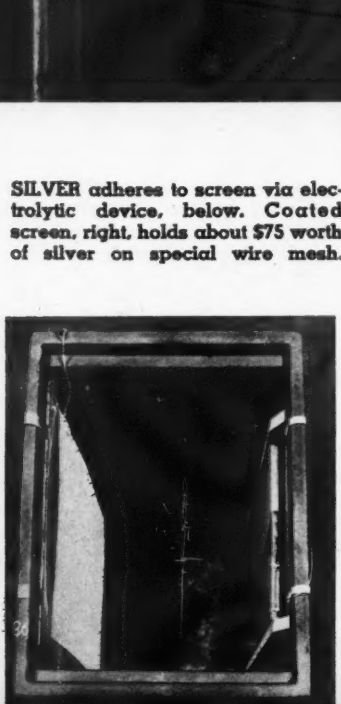
"A GIRL needs a Steady when it comes to painting the ceiling," says our MIMI, referring to a new device called Stepladder Steady Grips, made by Steven Donay Co., 2940 S. 38th St., Milwaukee 15, Wis. MIMI is quite at home on a ladder but she says Steady Grips are a useful safety feature for man, woman or orangutang. The Grips come complete with screws and retail for $2.39 a pair. They can be installed atop wooden or metal ladders.

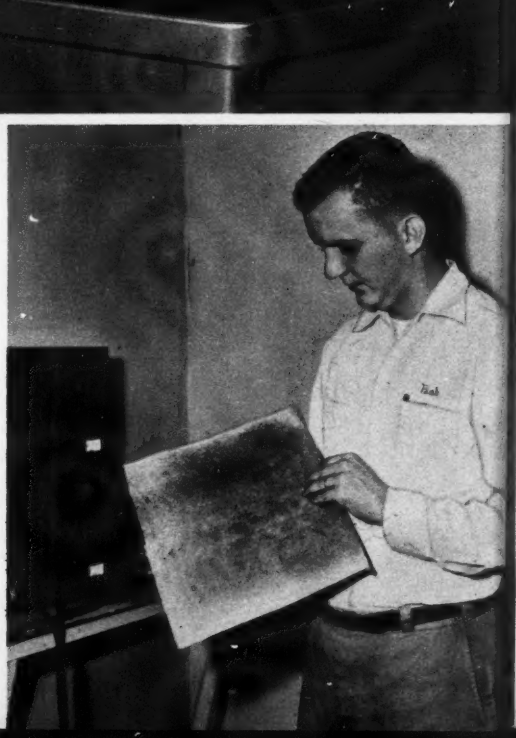


MONEY MAKING IDEA

INVENTOR Henry Willier. He discovered a way to reclaim silver from hypo solution.

SILVER adheres to screen via electrolytic device, below. Coated screen, right, holds about $75 worth of silver on special wire mesh.





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HE FISHES FOR DOLLARS IN HYPO

By Harry Kursh

A FEW years ago Henry O. Willier was preparing to resign from his job at the National Bureau of Standards in Washington, D. C. despite remarks by his colleagues which boiled down to: "Henry, you're nuttier than a fruitcake."

Henry had never gone beyond high school and his colleagues included some of the best-trained, best-educated engineers and scientists in the nation. He had an idea that a new industry—and a fortune—might be fished out of the hypo (fixing solution) used in photographic darkrooms.

Theoretically it was possible, his scientist friends agreed. All photo emulsions contain grains of silver. When films are processed the silver washes off in the hypo. But it goes down the drain with the used-up hypo. Any attempt to recover the microscopic particles of silver, Willier was advised, would be about as practical as evaporating the Atlantic to get a pinch of salt.

Willier's answer to this was to quit his job at NBS. Now, after five years, the Henry O. Willier Service, Rockville, Md., is here to stay. Last year it raked in more than half a million dollars. Not bad fishing.

Willier's system, which he describes as "an electrolytic device for continuous automatic silver recovery," has already been installed in more than 2,000 darkrooms, ranging from closet-size photography studios to huge commercial installations, hospital X-ray labs and industrial organizations in every state in the Union, Alaska, Canada and Hawaii.

Actually, Willier's remarkable success is based on the fact that he virtually gives money to darkroom operators, for two reasons: 1. The silver would have been poured down the drain. 2. Recovering it can cost the operators absolutely nothing.

Willier will "lease" his system to any customer, free. Under this arrangement the Willier service does all the work, sells the silver and splits the profits 50-50 with the customer.

Or anyone who wants to buy a Willier system outright may do so and keep all the silver profits. Such customers, however, may still send the silver to Willier, who will then serve as middleman by selling it to a refinery and getting the cash, 85 per cent of which goes back to the customer.

All it takes to install the system is a hammer and screwdriver, sometimes not even that. The device itself uses the same principles as electroplating. You put two electrodes in a chemical solution containing a metallic element and turn on the juice. Then one of the electrodes will attract the metallic element in the solution, trapping it on the electrode.

But the secret in Willier's system, details of which he will not disclose until his patent is secure, is a type of wire mesh which he uses as an electrode to attract the silver particles in the hypo. Also part of his invention is a power box he has designed, enabling the system to be used with any current "at proper working values for the system."

The power box, says Willier, is the only reason for the hammer and screwdriver. It has to be fastened to the wall or placed on a shelf. In the latter case, no tools are needed. The electrodes themselves merely clamp onto the hypo tank.

It wasn't always this simple for Willier, now a 46-year-old father of two teen-age children. Unable to afford college after graduating from high school in 1928, he considered himself lucky to get a job at the National Bureau of Standards as a metallurgist apprentice, earning $1,200 a year. At NBS, he volunteered to help his division chief, noted metallurgical scientist Dr. J. C. McAdam, run some experiments which required the making of thousands of [*Continued on page* 156]

RINK POOL with extra bottom and refrigeration for dependable cold weather skating. DeAnna Brooks, Lakewood, Ohio.

STAMP VENDORS at all corner mail boxes would be a boon to the nation's last-minute writers. R. F. Williams, Big Spring, Texas.

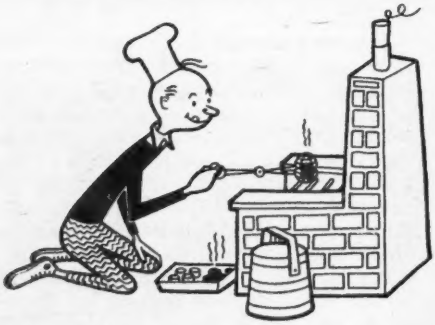
EARMUFF HEADSETS to plug into small portable radios for cozy listening in winter weather. Lewis Hagood, Riverside, Mich.

INVENTIONS WANTED!

Is there a gadget you think should be invented? If so, send its description to Inventions Wanted Editor, MECHANIX ILLUSTRATED, 67 West 44 St., N.Y. 36, N.Y. Each one printed will be awarded $5.

MARSHMALLOW TOASTER that can't drop the goo in the ashes—built like a kitchen soap-saver. Martha Duncan, Evansville, Ind.

PULL STRIPS would make opening frozen foods less like an eight-round prelim for mother. Mrs. Rodney Sykora, Wagner, S. D.



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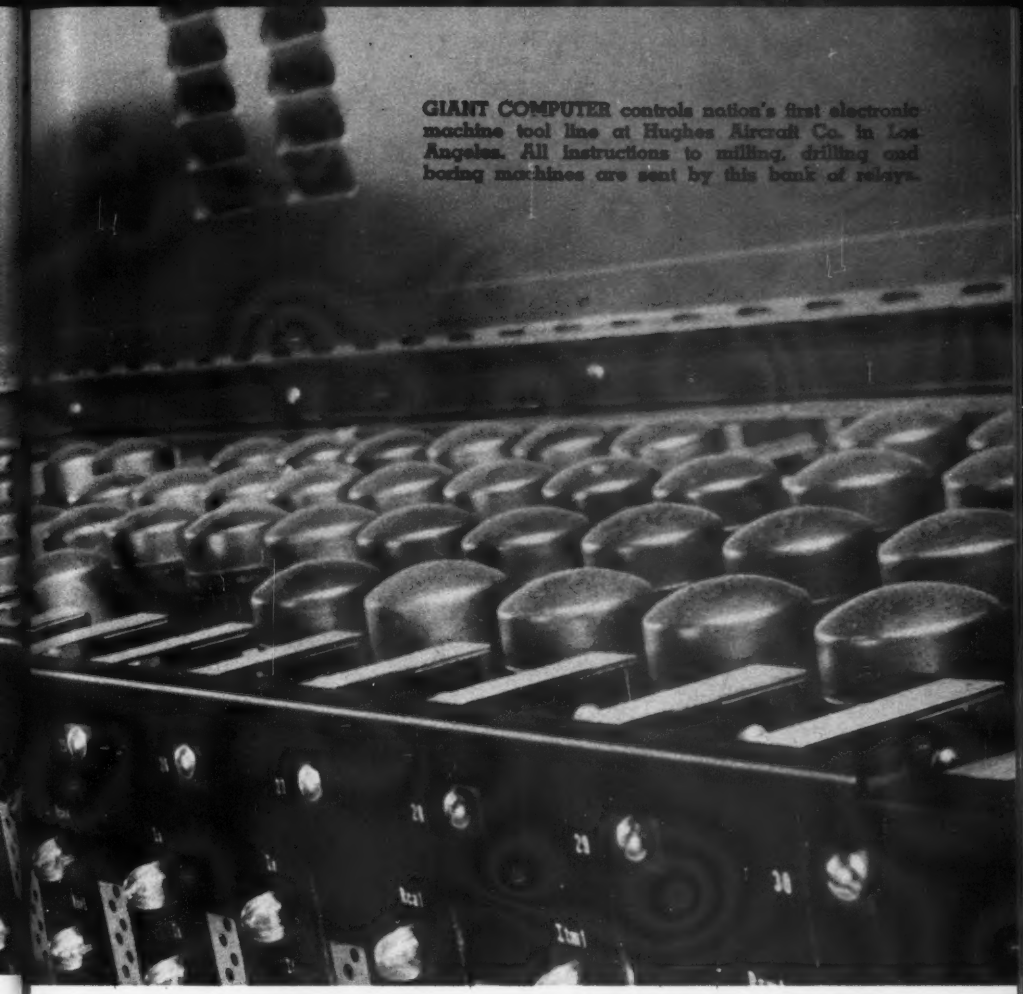
THINKING MACHINES

By Robert Strother

AT THE Vanguard Computing Center in Washington, D. C., I watched a young woman present a machine with an extremely complex problem in ballistics involving hundreds of variables. At once lights on a control panel twinkled and winked as the computer checked to see that all equipment was operating properly. Then it set briskly to work. Magnetic tapes spun in their shiny glass-and-steel vacuum cabinets, the high-speed printer muttered. Suddenly the machine stopped and the electric typewriter wrote: "Last entry improperly stated!"

A little embarrassed, the young operator corrected her error, and the machine started again. Four minutes later it gave an answer that had required several million individual calculations.

"This is a wonderful machine," the girl said, "but it makes you shiver sometimes, especially when you give it a wrong figure. Once in a while we give it



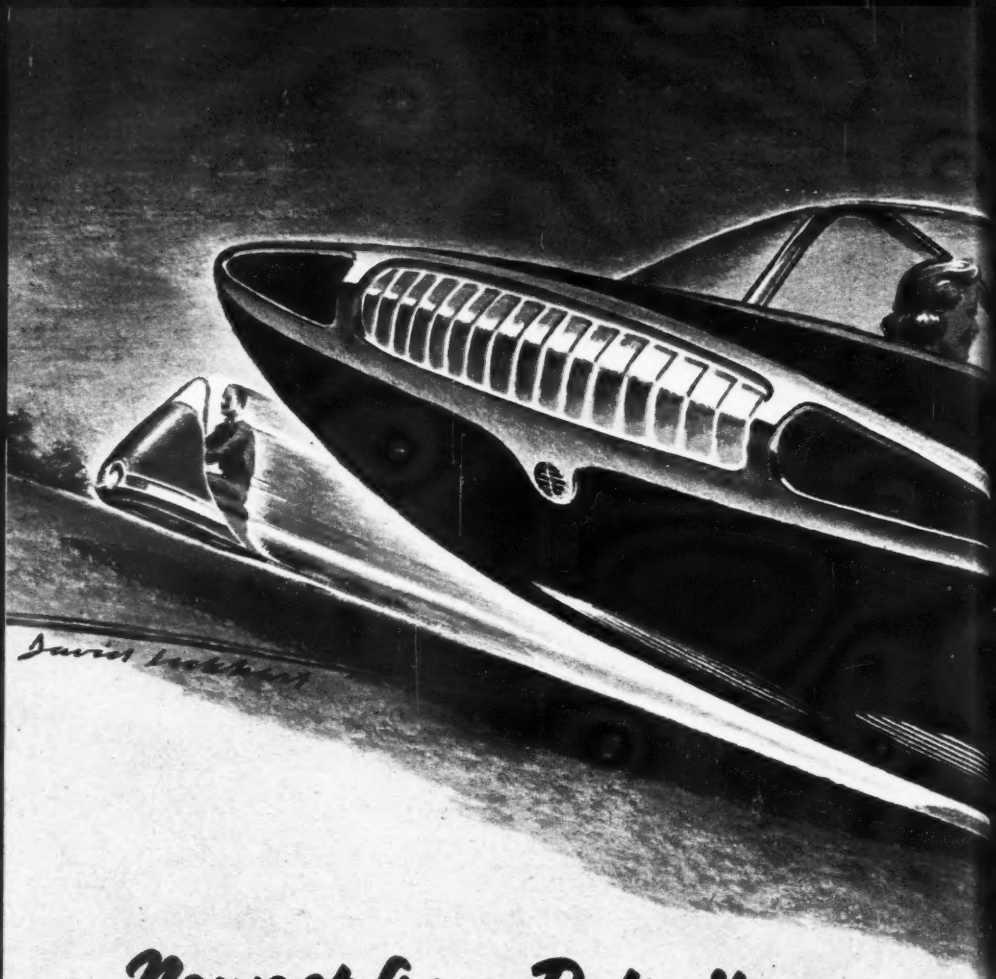
GIANT COMPUTER controls nation's first electronic machine tool line at Hughes Aircraft Co. in Los Angeles. All instructions to milling, drilling and boring machines are sent by this bank of relays.

ARE GETTING SMARTER

an incorrect figure on purpose—just to see it sneer at us."

The machine was an IBM electronic computer—one of the new "giant brains" which differ from previous computing and tabulating machines in that they function with the speed of light—186,000 miles per second. They can read, write and calculate simultaneously; they have tenacious "memories" and they can learn by experience. In the last half dozen years these electronic computers have come into wide use to perform miracles that touch the lives of all of us.

Most commercial and scientific computer systems are huge affairs that fill a good-sized room which must be air-conditioned and dust-free. The largest digital computers cost from $500,000 to $4,000,000 each and yet they are being produced on an assembly-line basis by several companies. An idea of the complexity of the manufacturing job is given by a single statistic: there are 500,000 electrical connections in a giant computer. [*Continued on page* 159]



Newest from Detroit...

Cars That

YOUR car of the future may have no wheels. It may not even touch the road as it races along the turnpike at speeds well above 100 mph while you and your family sit back and enjoy the ride—without fear of accident or injury.

This revolutionary new mode of travel was recently unveiled by the Ford Motor Company in the form of the Glideair—a wheel-less vehicle that rides on a thin film of air a fraction of an inch above the road.

Says Andrew A. Kucher, Ford's vice president in charge of Engineering and Research: "We look upon Glideair as a new form of high-speed land transportation, probably in the field of rail surface

GLIDEAIR is Ford's amazing concept of a wheel-less vehicle that would ride on thin film of air shooting through levapads beneath car. Levapads are also used on the futuristic motor scooter, far left.

t Fly

travel, for fast trips of distances of up to about 1,000 miles."

A gas turbine or turbojet engine would supply the power to both levitate and propel the Glideair. Instead of wheels the vehicle would employ "levapads," a Kucher-coined word. Tiny jets of air would stream through holes in the levapads, supporting the vehicle. It is significant to note that levapads have already been designed to fit around a standard rail. They raise the vehicle from the rail and keep it away from the rail sides.

There are also others with their fingers in the wheel-less vehicle pie. Noted designer Carl Reynolds recently showed off

Cars That Fly

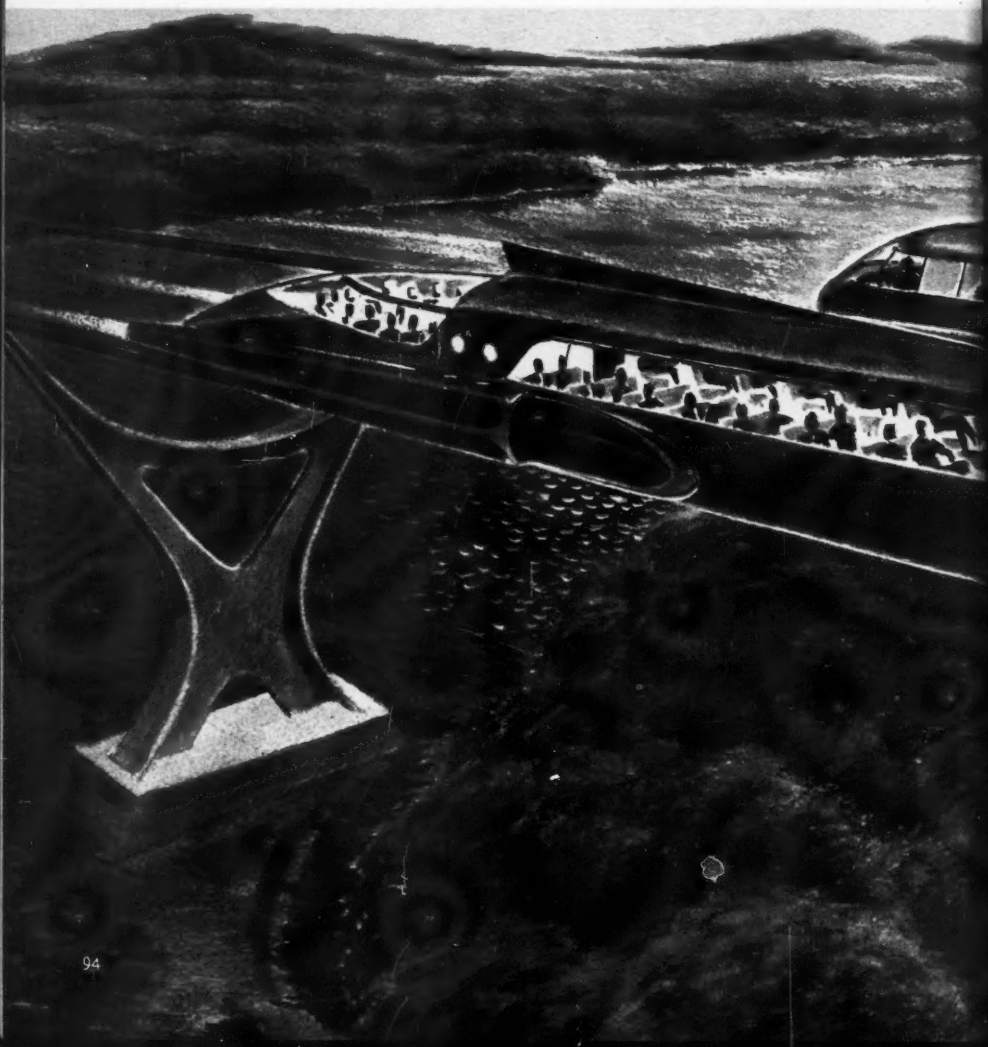
his concept of a car without wheels which he forsees by 1978. Mr. Reynolds says, "The highway cruiser, or large passenger car will float, or literally fly a short distance above the road supported on air compressed by turbine-driven ducted fans."

"In the wheel-less car," Reynolds goes on to say, "the driver's controls will be automated to simplify safe and effortless driving. . . Inter-city expressways will have electronic equipment for driver information as well as for traffic control and guidance. . . The car without wheels will negotiate fairly rough terrain, even travel over smooth water!"

Piasecki Aircraft Corp. has a Sky Car in the works for the not-too-distant future. It will be an offspring of their 59-K, one of two Flying Jeeps being developed for the Army. The 59-K, which is "well ahead of schedule," according to the Army, is designed to combine the utility of ground jeeps with the hovering capabilities of small helicopters.

The Sky Car will be the civilian version. It will have no wings or conventional propellers and will be pow-

FANTASTIC speeds of 200 to 500 mph are foreseen in future for unwheeled vehicles using



ered by two horizontal three-bladed rotor-props, one at the front and one at the rear, which will support the craft on two columns of air.

Both rotor-props will be shielded for safety and the Sky Car will hold a driver and three passengers. It will be able to fly down narrow streets or get above heavy traffic. It will also have powered wheels to drive it in and out of the garage or congested areas.

According to Piasecki, the Sky Car will cost little more than a high-priced motor car of today.

Ford also envisions what it calls an aero-car. Dubbed the Volante, the vehicle would be powered by means of three fan units arranged in a triangular pattern to provide lift and thrust somewhat like a helicopter.

That's the story of tomorrow's vehicles. How soon they'll appear above the roads is anybody's guess. Scientists are currently experimenting with the means to power such vehicles. One thing is certain—cars that fly are on the way; you may be parking one in your backyard in just a few short years. •

monorail system. Levapads would raise vehicle from rail, hold it away from rail sides.

WHAT IT COSTS TO BE A

"THE radio amateur is the kind of hobbyist who has holes in his shoes but operates a $500 receiver and a $1,000 transmitter!"

This comment was made a few years ago by the president of the amateurs' national organization, the American Radio Relay League, but the newcomer in ham radio should not take the remark too literally. An excellent start can be made with a much smaller investment.

The basic unit in the ham shack is the receiver. For beginners I recommend one of the general coverage type, tuning from about 30 megacycles to 540 kilocycles. This very wide frequency spread includes not only the popular amateur long-distance bands but also commercial shore and ship stations that provide wonderful code practice; police, fire and aeronautical stations; international short-wave broadcasting stations; and the entire United States AM broadcasting service.

Good factory-made general coverage receivers start at about $150. Top price is about $650. Actually, you can hear as much with one as with the other but the more you spend the more you get in the way of tubes, circuits, tuning convenience and eye-appeal. Communications receivers are loaded with controls and gadgets to gladden the hearts of inveterate dial twiddlers. A typical set has 11 knobs, two tuning scales, a meter, three colored lights, four switches and an earphone jack. Incidentally and oddly, not one model has a built-in loud speaker. This is a separate accessory, costing from $5 to $25. Earphones, $2 to $15, are also extra and very useful for late listening.

After you have obtained your Federal Communications Commission license (See So You Want To Be A Ham, July '58 MI) and have acquired some on-the-air experience with your first transmitter, you will probably consider a second receiver, a specialized job that tunes only the ham frequencies, to the exclusion of all other services. Costing from $250 to $700, such a set offers the ultimate in sensitivity (the ability to respond to weak signals), selectivity (the ability to separate interfering signals) and stability (the ability to stay put without requiring constant dial manipulation).

In the first flush of buying enthusiasm many new amateurs make their initial investment in special ham receivers, but they soon miss the versatility of the general coverage sets. The latter's value was emphasized dramatically when the Russians launched the Sputniks with their radio transmissions outside the ham bands. Owners of all-wave sets, however, tuned in the signals quite easily. With two receivers on your operating table, the world is really at your fingertips.

If you are a do-it-yourselfer, you may ask, "What about receivers in inexpensive kit form?"

Satisfactory short-wave kits are just reaching the market. A general coverage receiver in knock-down form costs about $110, a much more elaborate ham-band-only set about $250.

Short-wave receivers work fine with simple aerials. A ten-foot length of wire thrown along the floor is often adequate. Better results are obtained with an outdoor wire, 25 to 50 feet long and strung in the clear.

The price range of ham transmitters is wider than that of receivers. Excellent kits have been available for some time, beginning as low as $36 and running as high as $750. Contrary to general impression, transmitters are easier to put into working order than receivers, although not necessarily easier to assemble and wire. Receivers often require expensive and difficult alignment, whereas transmitters are virtually self-aligning.

Some transmitters are sold in both kit and factory-made form, at a considerable difference [*Continued on page* 157]

A HAM

By Robert Hertzberg

LOW-PRICE ham station made from Allied Radio Corp. kits are, left to right: Knight 50-watt transmitter, $39; Knight VFO (variable frequency oscillator) used with transmitter, $28.50; Knight all-wave amateur receiver, $114. Earphone, key, about $2 each.

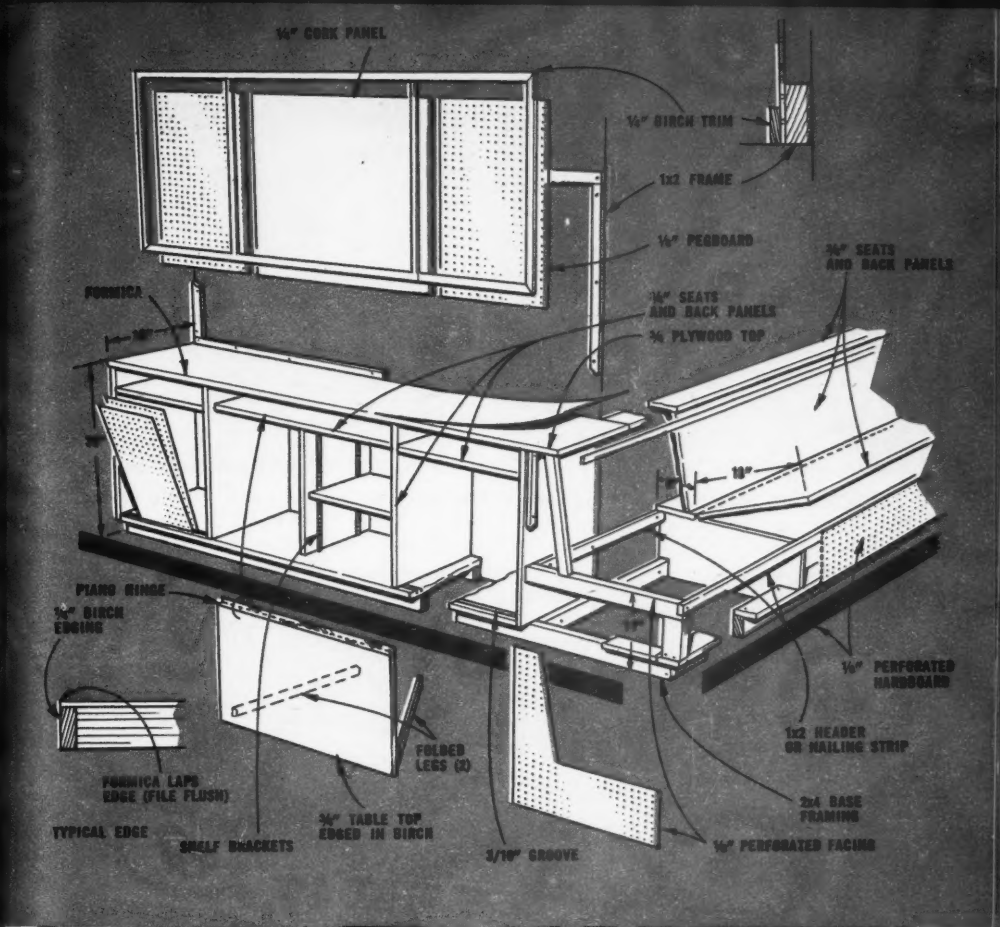
MEDIUM-PRICED desk-top ham station of author includes, left to right: Hallicrafters HT-32 transmitter, $675. Hallicrafters SX-101 ham-band receiver, $395. Loud speaker in homemade enclosure, $5. Electro-Voice Model 605 dynamic microphone, $20.

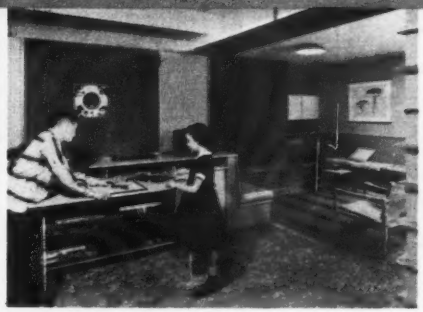
SUPER DELUXE station. Collins 75A-4 special ham-band receiver, left, $695. Center, SC-101 station control unit with loud speaker, clock, etc., $695. Right, Collins KWS-1 transmitter (full kilowatt), $2,095. Telegraph key, first-class mike, about $100.

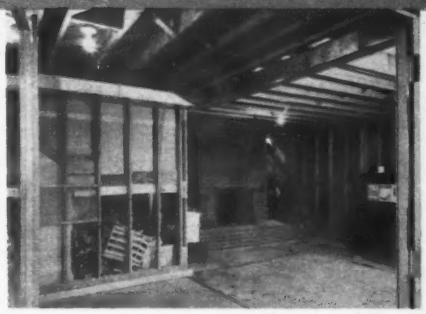
Beautiful Basement

MANY a family man who buys a new home with an unfinished basement looks forward to putting the lower level into livable shape as a do-it-yourself project. He does it, too, a little at a time—as its

SMALL PHOTO shows section of basement before; only fireplace is finished. Drawing is of wall cabinet which hangs beside the chimney.





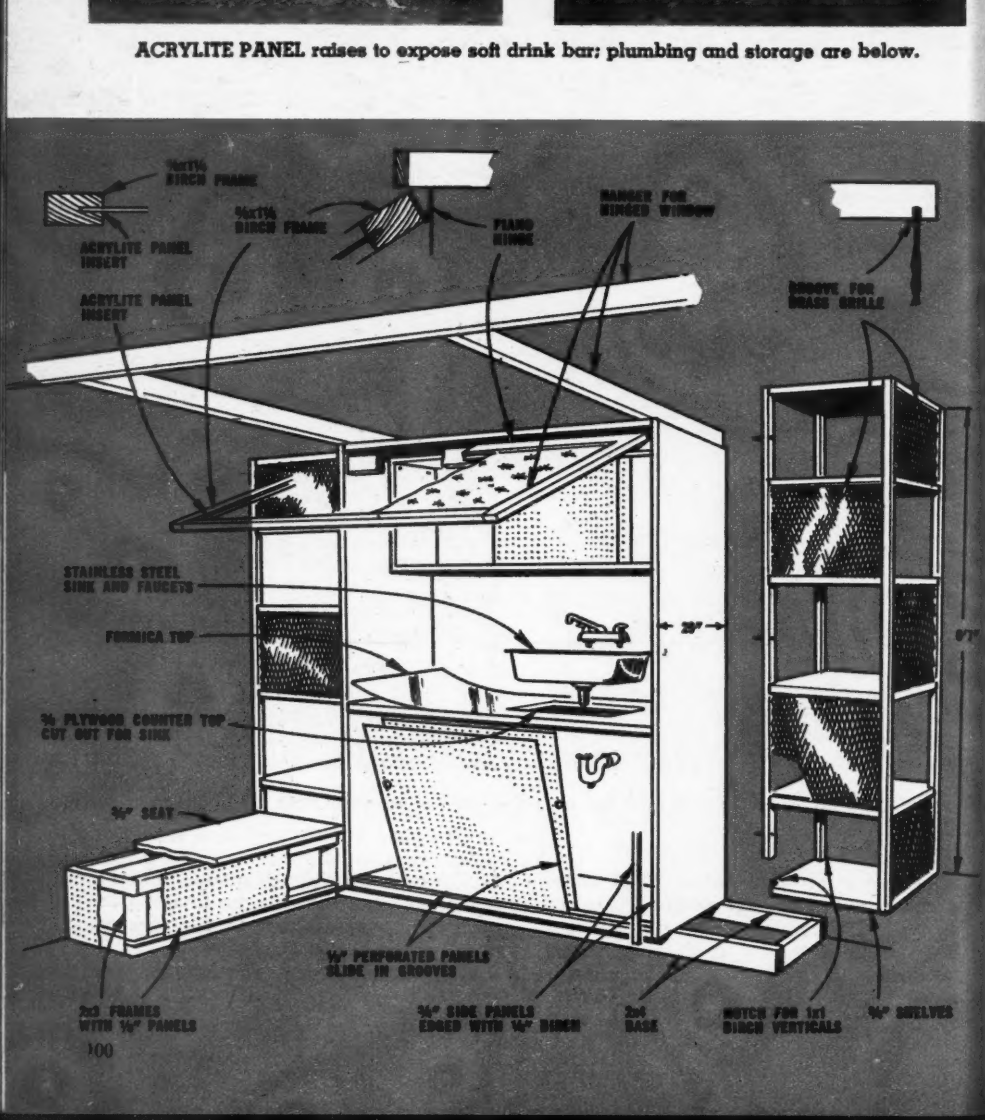


CHILDREN'S PLAY AREA now and as it was; part of the adult area is at right rear.

appearance often testifies. The basement becomes a hodge-podge of storage space, recreation area and extra sleeping room. It takes its finished shape according to the plan of the moment—a plan that varies with mood. The result is an area that has no imaginative design or over-all scheme for efficient use of space.

The accompanying photographs and

ACRYLITE PANEL raises to expose soft drink bar; plumbing and storage are below.



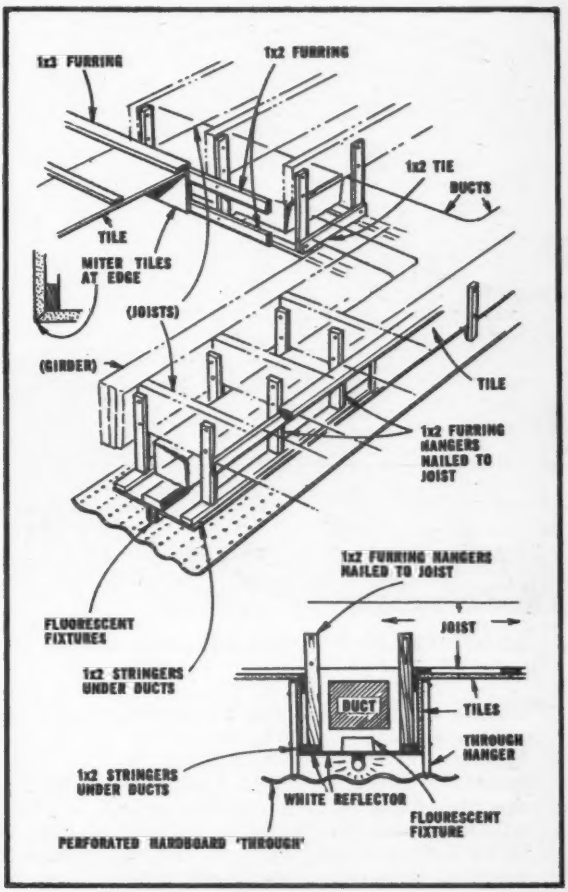
drawings illustrate how the Paul H. Wolfe family in Seattle, Wash., transformed their split-level basement from a dismal space-waster into a cheerful addition to the livable area of the house. The finished basement, planned by architect Jesse T. Wilkins, Jr., solved a variety of problems for the Wolfe family. Let it be a guide to the type of planning that will help you make your basement into an attractive, useful complement to the upstairs section of your home. Here's what the Wolfes needed in their basement: Play space for their three children, toy storage space, a guest room, a place for Mr. Wolfe's record collection and record player, space to accommodate Mrs. Wolfe's piano, and an area where the adults could hold a party with plenty of elbow room. All these things were accomplished with no noticeable loss of space.

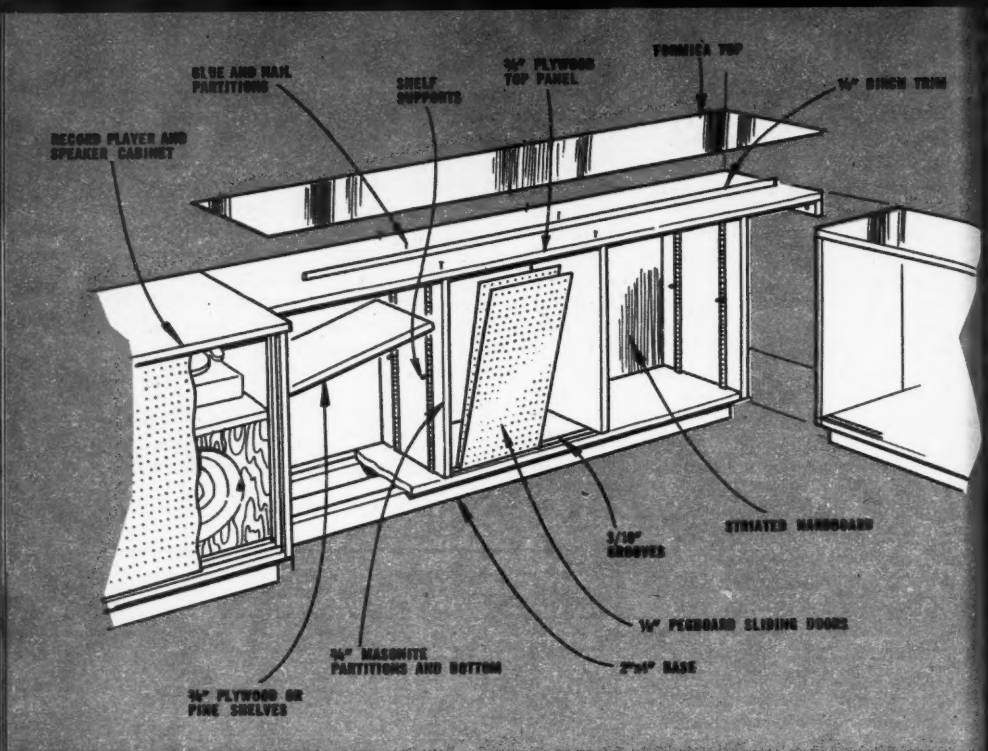
With the basement roughly T-shaped, the stem of the T became the children's room. Its major features include a game table (a cabinet door that folds out and up to form a table large enough to hold an electric train set), a soft drink bar, ample storage shelves with sliding doors of perforated hardboard and perforated hardboard wall panels on which game equipment can be hung. Adding to the utility of both basement rooms is the floor of vinyl tile and sound-deadening ceiling of insulation board tile.

The area forming the top of the T is devoted primarily to adult interests. That's where you'll find the fireplace, television set, two long benches that double as storage bins, radio-phonograph, waist-high cabinets for storage of records and other items, bookshelves and wall-hung cabinets.

To accentuate the division between the two rooms, a closet was built out from the wall next to the outside entrance door. No ordinary closet, this: its width is sufficient to accommodate a folding bed and there are shelves for bedding above; its depth is enough to provide the necessary wall space for a spinet piano. With wood framing members on the outside of the ¾-inch laminated hardboard that forms the three visible walls, the closet presents an interesting appearance and appears to have no door when the door is closed.

All these facilities were integrated into a plan that blends each unit with the next. The major storage units are scaled low, some of them be-

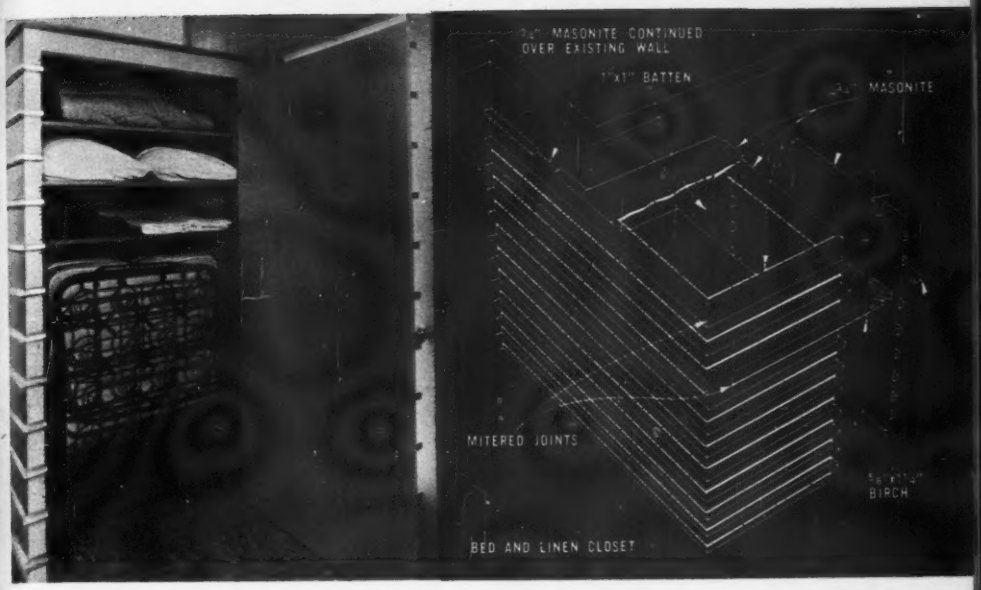




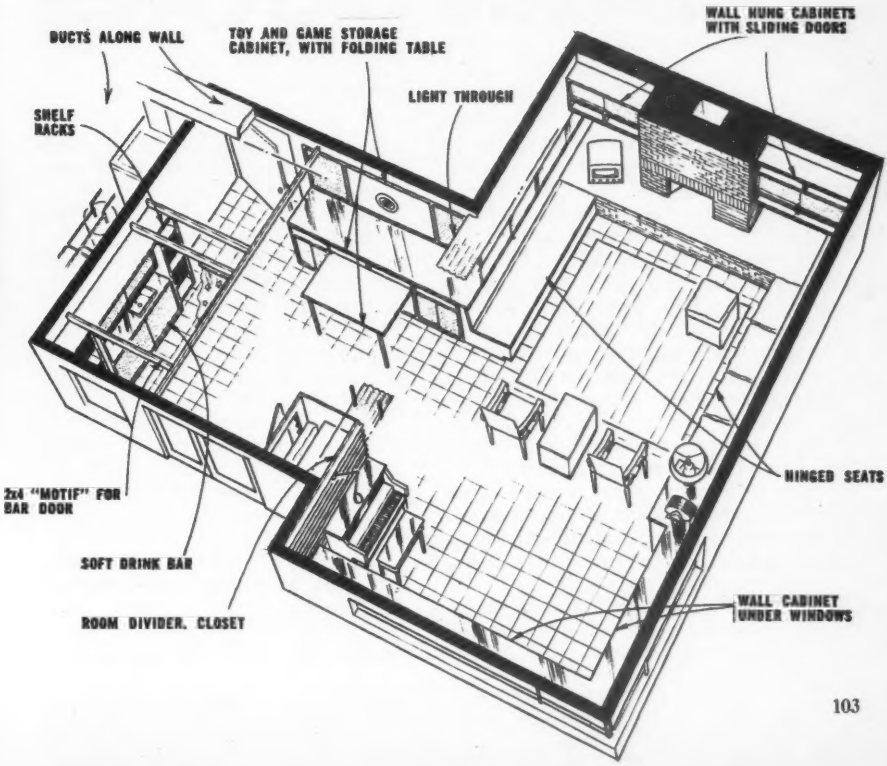
BELOW WINDOWS are bookshelves and cabinets for hi-fi equipment and record storage.

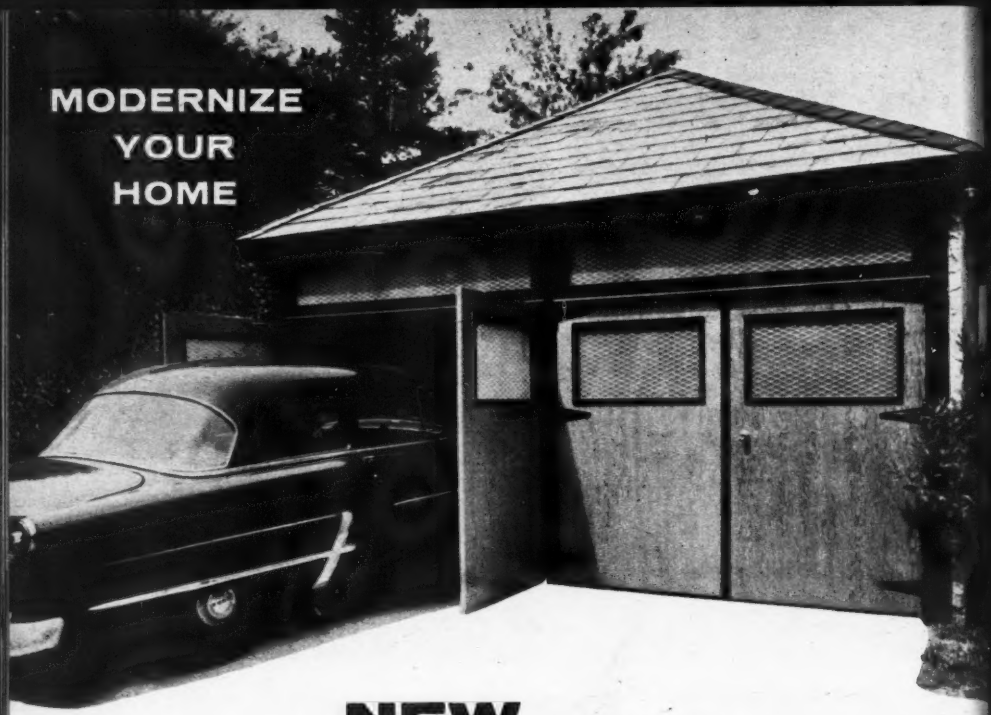
coming seats with the addition of foam rubber cushions on their hinged tops. Wiring cable and pipes were hidden between the overhead framing members that are covered with noise-reducing insulation board tile nailed to 1x3-inch wood furring strips. Most of the exposed surfaces are of hardboard, which is easy to paint, splinterless and cannot be dented.

What do the Wolfes think of their basement now that the work is done? "The most-used part of the house," says Mr. Wolfe, "and the place where we have the most fun—children and grown-ups both!" •



UNIQUE CLOSET houses folding bed, linen; framing members on outside are decorative, allow extra space within; closed door isn't apparent.





NEW GARAGE DOORS

By R. J. Capotosto

GARAGE doors that have begun to suffer such old-age ailments as rot, sagging, warping and an over-all haggard appearance have earned, and are qualified for, their retirement.

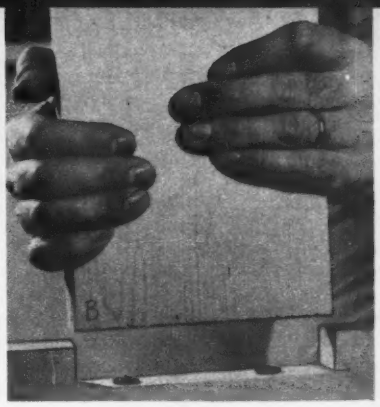
The smart new-look design pictured here incorporates several noteworthy innovations. The doors are shorter, lighter in weight and feature relatively unbroken surfaces that are easier to maintain. Also, the nuisance of window breakage has been eliminated by replacing glass panes with translucent Resolite, a synthetic of Fiberglas-reinforced polyester resins criss-crossed internally with aluminum mesh. This material is crackproof and shatter-proof yet transmits plenty of soft diffused light that is easier on the eyes than direct sunlight.

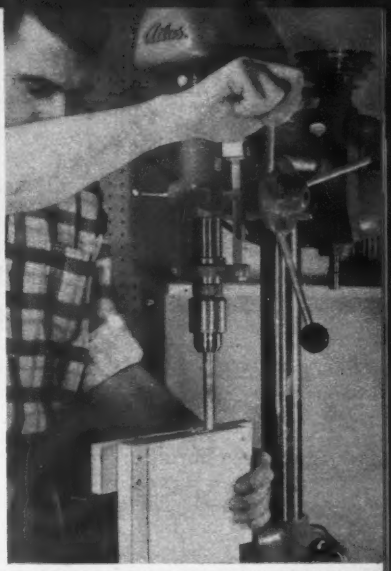
The doors' frames are constructed of 1⅛x6-inch kiln-dried straight lumber and surfaced with quarter-inch exterior plywood. The doors are not difficult to make. After studying the pictures and diagrams you should be able to give your garage a complete face-lifting job in a couple of weekends.

Your first step will be to check the plumb of the garage's corner and center-posts. If these supports are found to be aslant, true them up with a tapered wedge running the length of each post. However, a post that has been affected by rot should be replaced.

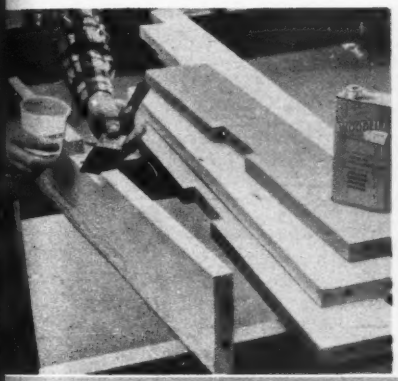
With the opening properly squared the dimensions for the new doors can be taken. These doors were built a foot and a half shorter than the former ones so that an 18-inch transom could be accommodated above.

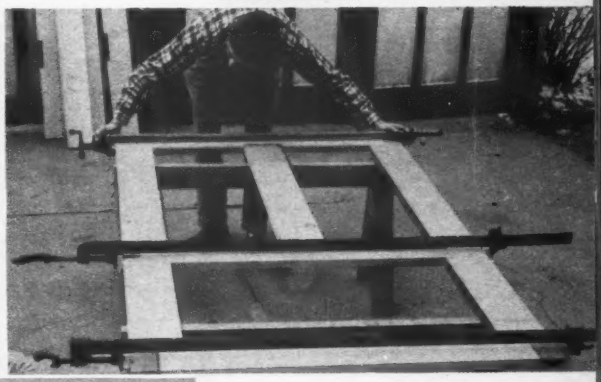
With the aid of circular, band and jig saws the lap joints for the framing can be formed in short order. Bore the dowel holes in the long cross-members by swinging the drill press table around

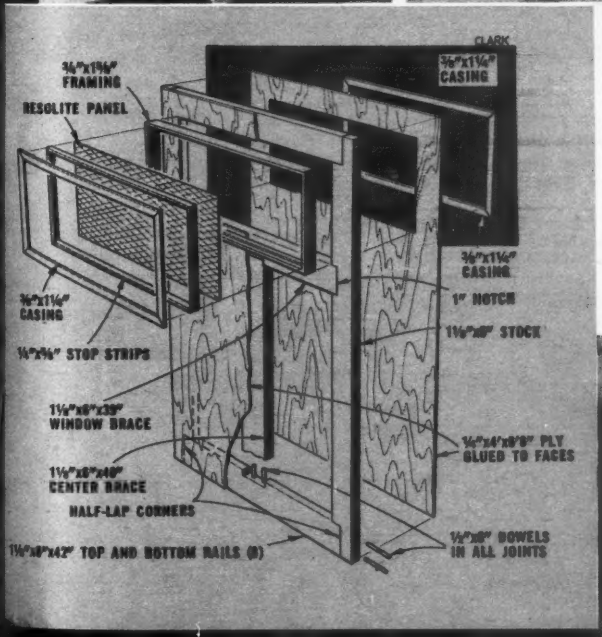




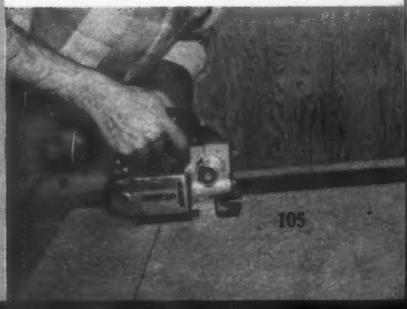
BAND SAW (top left) forms lap-joint cut in vertical frame. Center photo shows how dowel-centering pins locate matching holes in cross members. Drill press table swings aside (right) for boring dowel holes in same members.







WOOD PRESERVATIVE is applied (left center) to all the framing sections before assembly; glued and clamped (above), they are left to dry. A portable bayonet saw is used to make the cutouts in the doors for Resolite panels.



to the back and out of the way. The stock should then be gripped with a jig fitted to the edge of the table.

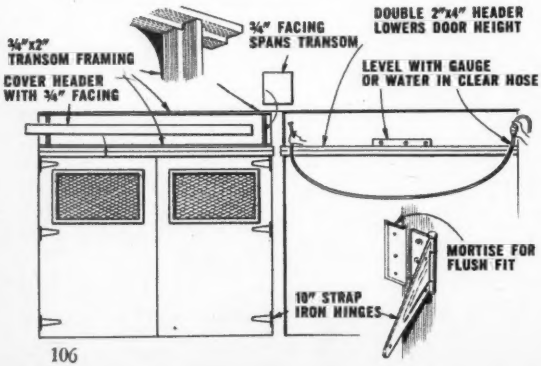
When all framing members have been cut to size they should be treated with wood preservative. Several applications of a good wood preservative such as Woodlife should be given every surface. This treatment not only makes the lumber resistant to dampness but will do much to discourage rot and wood insects as well. Now, using waterproof glue, assemble the doweled frames and hold them in place with several bar clamps until the glue has set.

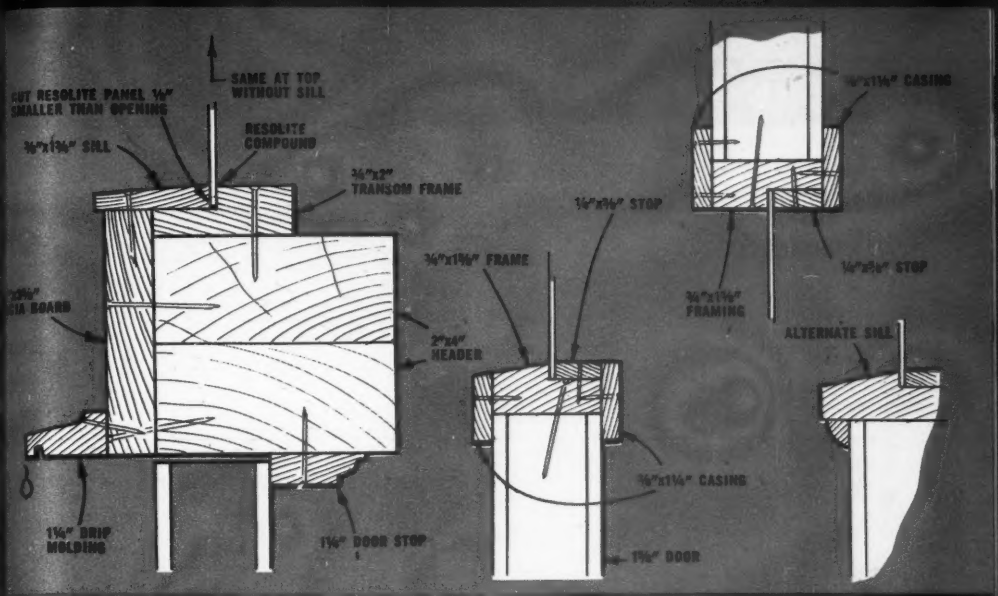
One-quarter-inch exterior fir plywood was selected for surfacing the doors because of its relatively light weight, its rich grain pattern and its ability to resist weathering. Order it cut to size and then set about cutting out the openings for the Resolite panels before treating the plywood with preservative.

In joining the panels to the frames, glue is applied to each panel where it abuts a frame. Some quarter-inch finishing nails are then driven to secure the plywood in place and to permit turning the door over to work on the other side. With both sides joined, pressure is applied by clamps.

The old doors are removed at this point and work is begun on repairing or replacing dilapidated cornerposts or centerposts. [*Continued on page* 136]

LEFT. Glued and nailed to frames, plywood panels are clamped between 2x4's. Angle irons (center) secure new centerpost to overhead beam. Jointer (right) cuts framing strips for Resolite panels.

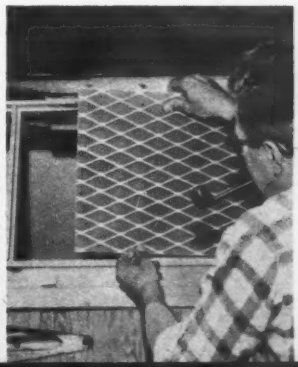


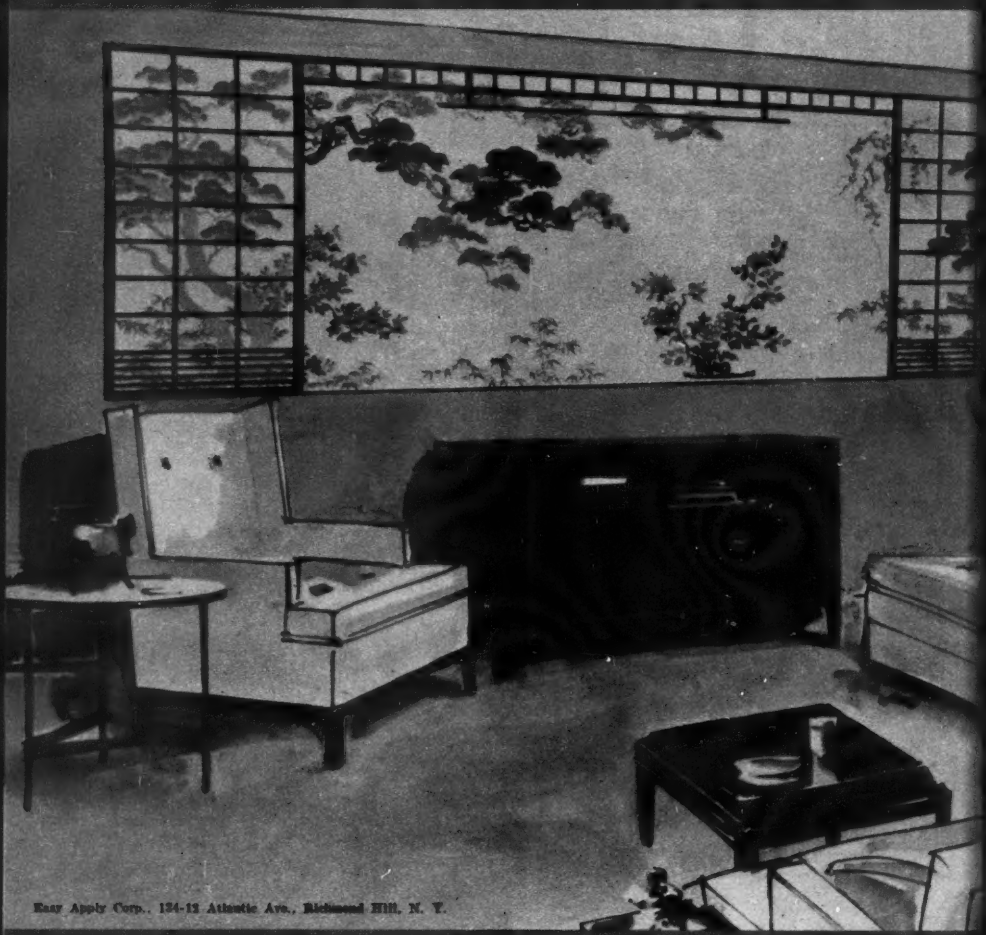


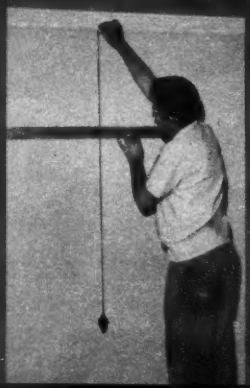
ABOVE. Doors are test-fitted to frames once the centerpost is made plumb.

LEFT. Framing strips for plastic panels are glued, nailed into place.

FINISHING STAGES of construction include: (Left) application of Firzite to tame the wild grain in doors. (Center) installation of transom at top. (Right) fitting locks to doors.



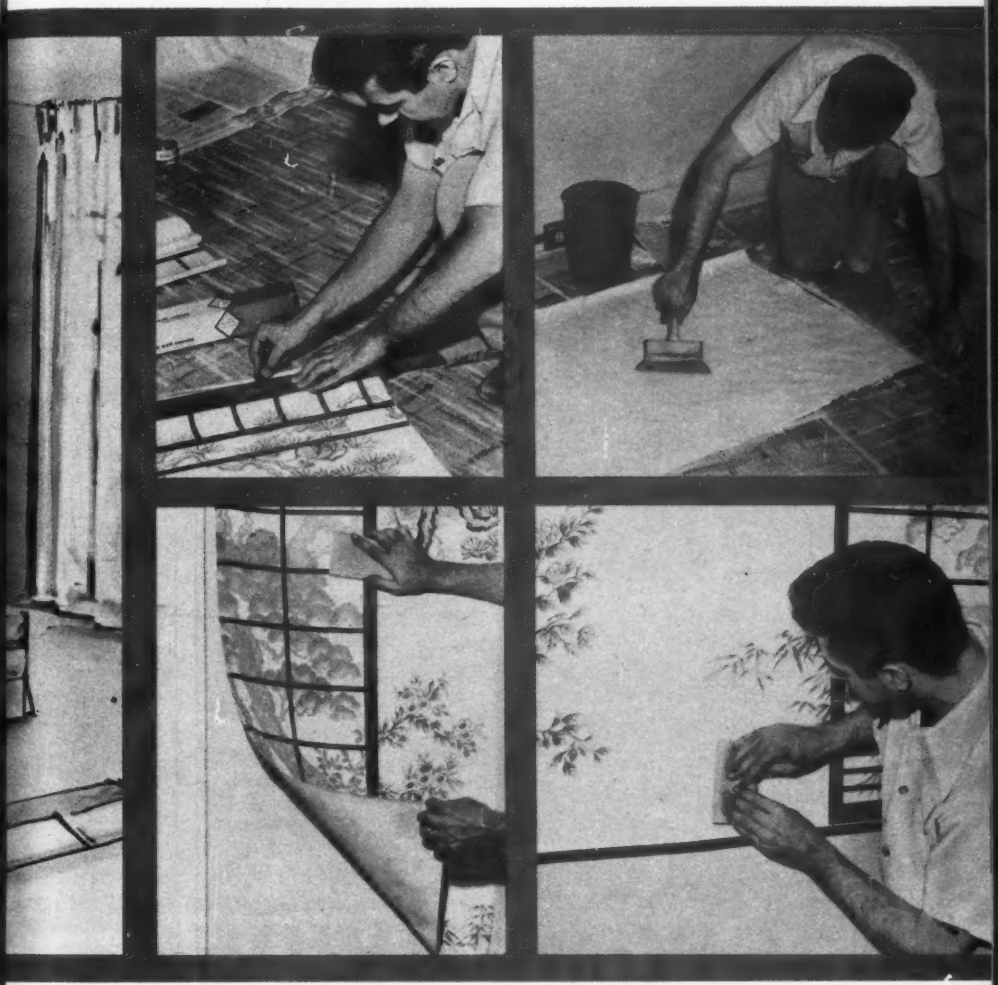




JAPANESE GARDEN scene depicted above harmonizes artistically with modern furniture.

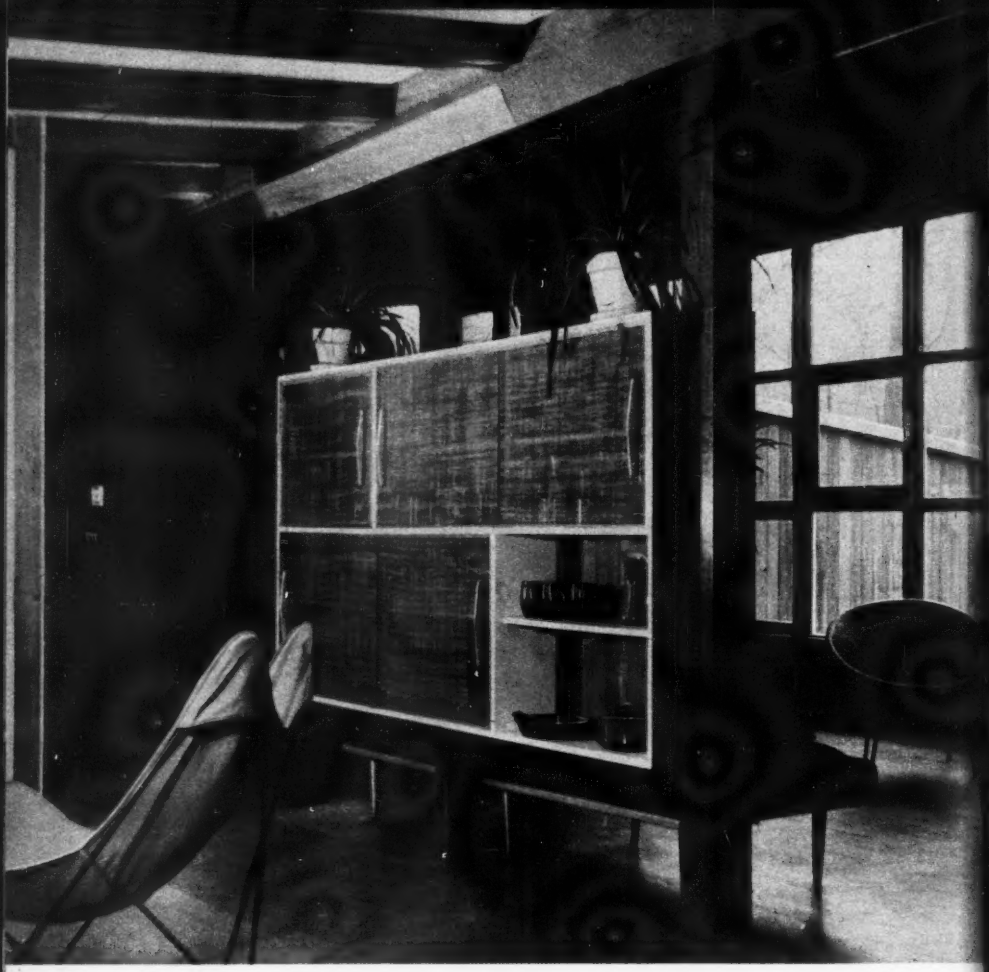
LEFT. Size wall area to provide nonporous surface to which paste can adhere; then plumb wall to insure a level application of mural.

Japanese Mural



TOP EDGES of strips are trimmed off along design with a razor blade. Paste is then applied to backs of strips Nos. 1 and 2. Now apply strip No. 1 to wall using a moist sponge to flatten canvas and squeeze out excess paste. Complete application of mural by applying strips Nos. 2, 3 and 4 in order. Detailed instructions come with all murals.

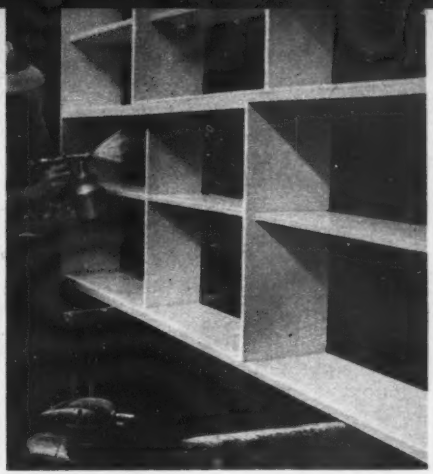
HOME owners can now add new elegance to their walls with these beautiful hand-printed murals on washable canvas. Called Easy Apply Murals, they can be spaced on your wall to achieve the decorative effect you want. In addition to Japanese vistas, murals are also available depicting scenes from the Continent, the South Seas and rural Americana. The murals come in four strips which, when applied with paste to a painted wall, form the scene. •



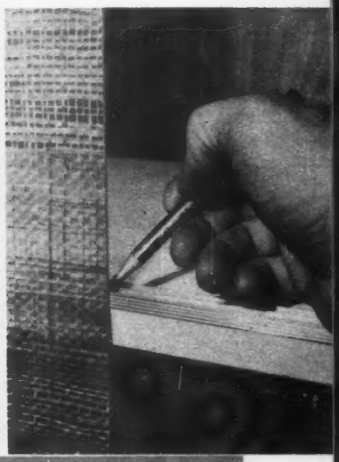
ROOM DIVIDER

USE of a room divider instead of a regular partition wall greatly increases the feeling of spaciousness in a home — particularly when the house isn't large. The divider above was installed between the living room and kitchen of a summer home which was remodeled for year-round living. While it separates the two, it doesn't close off each into a confined area. It also doubles as a pantry where space is at a premium —and no one can deny its eye appeal.

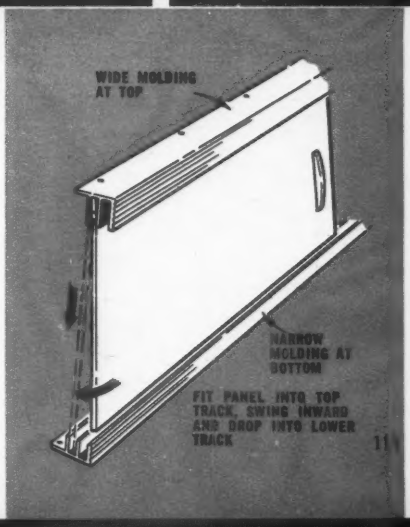
Because the columns at each end of the divider support part of the roof load, they are 6x6's; in cases where no load is supported, they can be 4x4's. The storage area is of easy box-like construction which is clearly detailed in a drawing.



DECORATIVE sliding doors, left, are made of textured Acrylite, hide canned goods used in the kitchen; box frame, center, gets a finish coat with a spray gun; right, marking length of aluminum sliding door track.



SLIDING DOOR TRACK, left, is readily cut with fine-toothed saw; center, No. 4 roundhead screws secure track; right, to trim door panel to proper height, insert top edge in the upper track and draw mark along top edge of the bottom track.



After being assembled, it is painted and hung between the columns with a small support at the center. The attractive backing is prefinished cherry plywood paneling and requires no work except installation.

While the sliding doors can be made of any rigid material, Acrylite, a decorative plastic with an embedded net was used in this case. It can be had in many textures

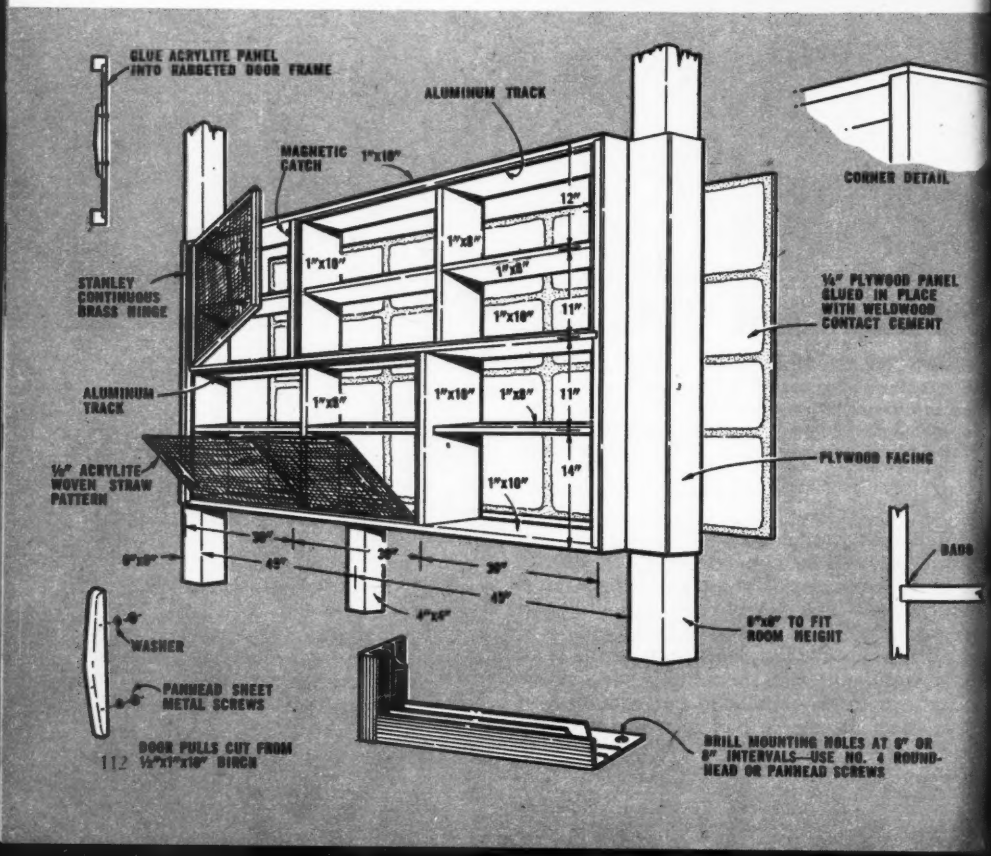
for different effects and is extremely simple to install with Reynold's aluminum door track now on the market.

The sliding door track is available for ⅛- or ¼-inch panels. You can use panels ⅛-inch thick for any opening up to 24 inches; for anything larger, better use a ¼-inch thickness.

To install the track, all you need do is cut it so that the doors will overlap a half to one inch at the center. Then fasten it as shown, using a piece at each side as a slot for the door to slide into. The side pieces, however, can be omitted because the doors can just as well butt against the wood. With the panels inserted, the result is a handsome addition to your home at minimum cost.

—*David X. Manners*

CANDLE rubbed on track, top right, makes doors slide better; random-width, prefinished cherry paneling, by U. S. Plywood, is on living room side of divider, right.



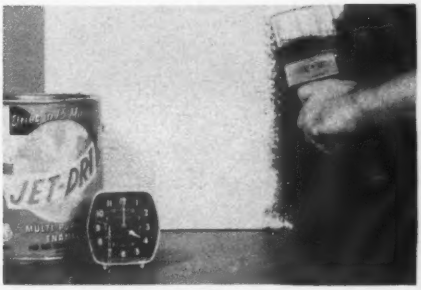
NEW PAINTS

The Upson Company, Lockport, N. Y.

Goldsmith Bros., 77 Nassau St., N.Y.C. 4

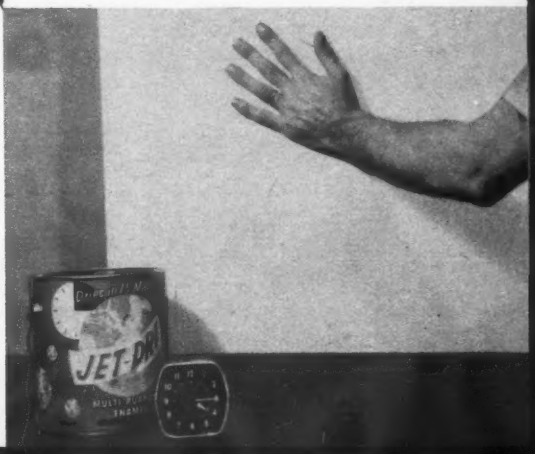
LIQUITILE, a fluid ceramic-like paint, ideal for refinishing kitchen cabinets, will adhere to metal, wood or composition surfaces.

JET-DRI is an aptly named multi-purpose enamel which dries in 15 minutes to an unusually smooth, moderately high gloss.



20th Century Paint and Varnish Corp.,
456 Driggs Avenue, Brooklyn 11, N. Y.

SILITEX paint waterproofs all masonry. Surfaces are thoroughly moistened before paint is applied with a stiff brush.



Armstrong Cork Co.

CHALK LINES from center points of each of the walls are drawn down the middle of the room to opposite wall.

PRESS TILES firmly into adhesive—don't slide them into place. Tile one-quarter area of the floor space at a time.

A NEW FLOOR

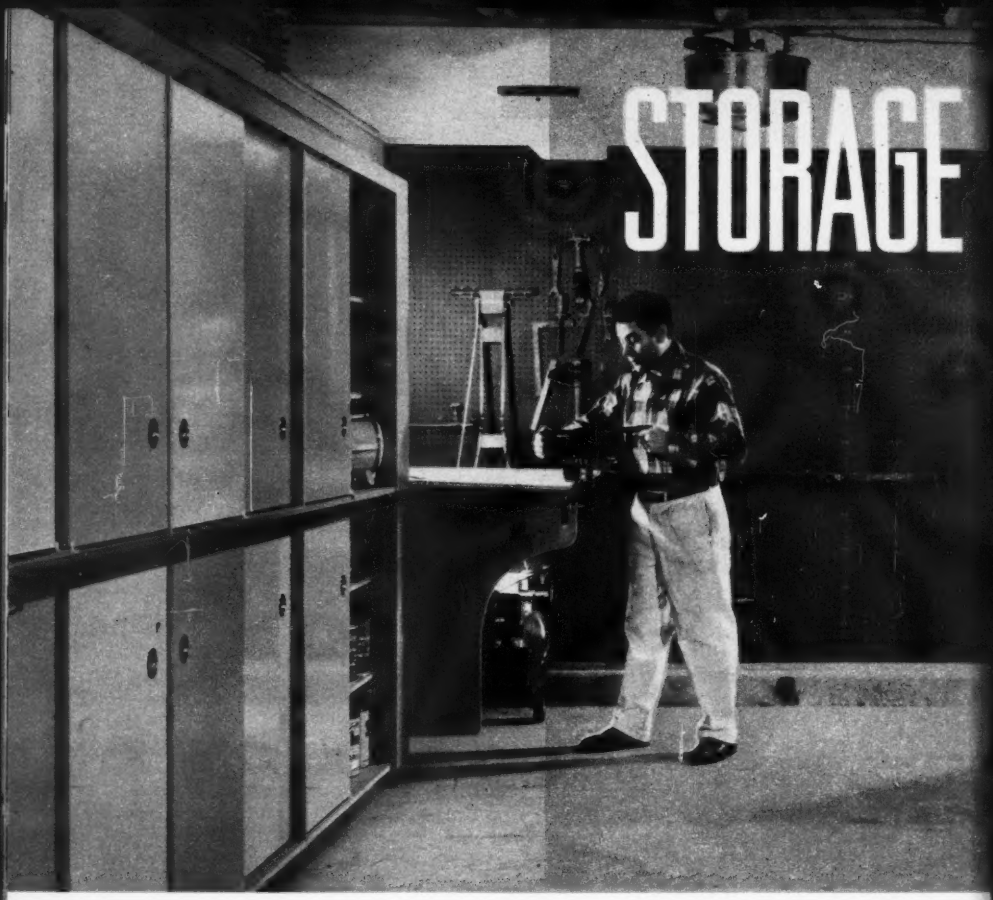
ALL FLOORS must be thoroughly cleaned and smoothed before application of adhesive and tile.

Here's a new vinyl-asbestos tile that wears like iron and can be installed by any handyman.

EASE of installation, moderate price, durability and beauty—these are the qualities we expect in today's floor coverings. Among the most popular of these materials are the new vinyl asbestos tiles which are particularly easy to install using a new type brush-on adhesive. The first step in laying tile is to clean the floor of all dirt and dust. The floor is then quartered by finding its center at the intersection of two perpendicular chalk lines drawn between the facing pairs of walls. With the floor thus marked, spread adhesive over one of the quarter areas and let set until "tacky dry." Then, starting from the corner nearest the center of the room, press the tiles into the adhesive and flush with their respective chalk lines so that each tile butts firmly against its neighbor. Repeat in the other quartered areas of the room, finishing the entire center area before starting to cut and fit the border tiles.—*Mike Bonvino*

SMALL AREAS such as alcove below (left) can be completely coated with adhesive prior to tile installation. For larger areas, this new adhesive can be "cut-in" by brush even after overnight stop.

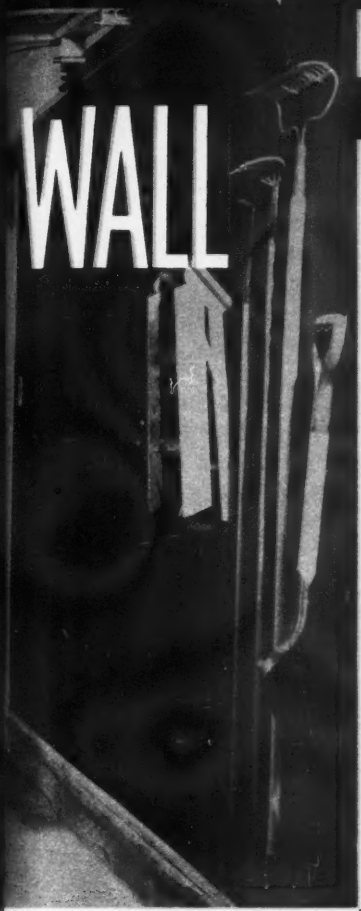
STORAGE W



FURRING STRIPS are secured to the garage walls with 2-in. cement-coated nails.

VINYL SHEET insulates the exterior concrete wall, is stapled to furring strips.

DUR
vinyl



DURAPLY PANELS cover the vinyl sheet, also insulate.

MODERNIZE YOUR HOME

By Bill Baker

IS YOURS a one-car garage without any facilities other than the name implies? Well, you can insulate it, provide for storage and a workshop and still have room for the car. The whole job doesn't require any special talent and anyone handy with simple tools can do it.

Since the garage illustrated is attached to the house, under one of the bedrooms, insulation was an important factor. It not only cuts down on winter fuel bills by retaining the heat, but helps keep the whole place cool in summer.

To insulate a brick or concrete exterior wall of an attached garage, it must first be faced with 2x2-inch furring strips. Lay a horizontal strip across the base, fastening it to the floor with steel-cut nails; then secure a strip across the top with cement-coated nails and toe-nail vertical strips between the two, making sure they are plumb and level.

You can insulate the furred wall with a

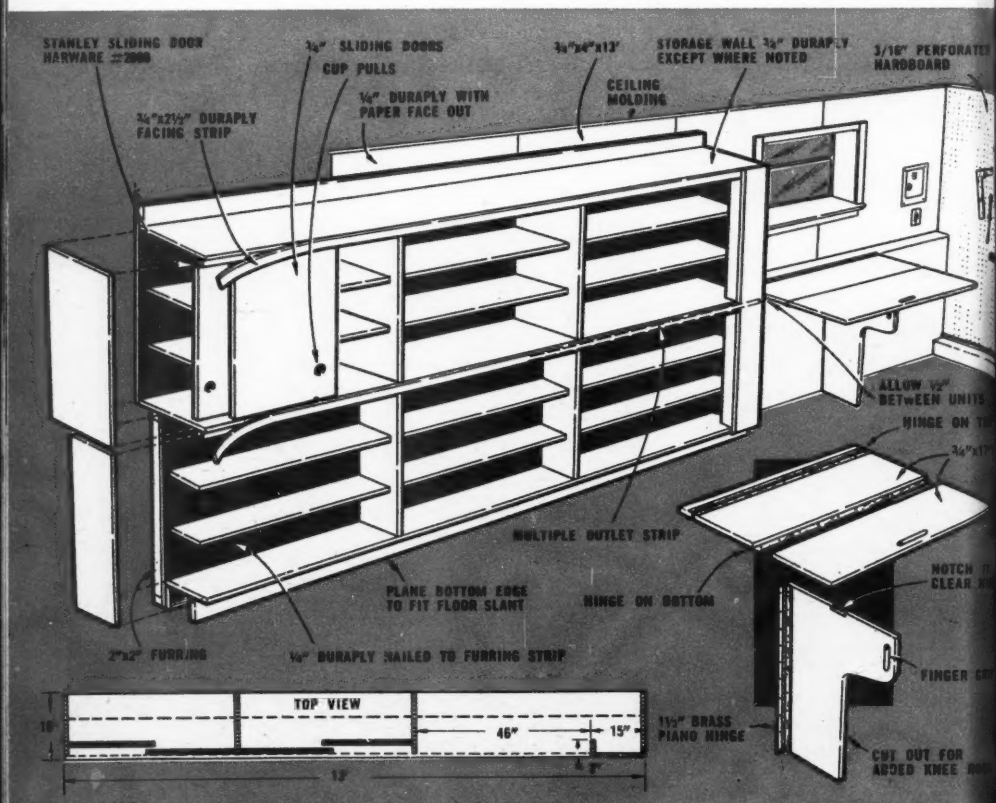
INTERIOR WALLS get 3/16-in. tempered hardboard covering; 1¼-in. coated nails fasten it.

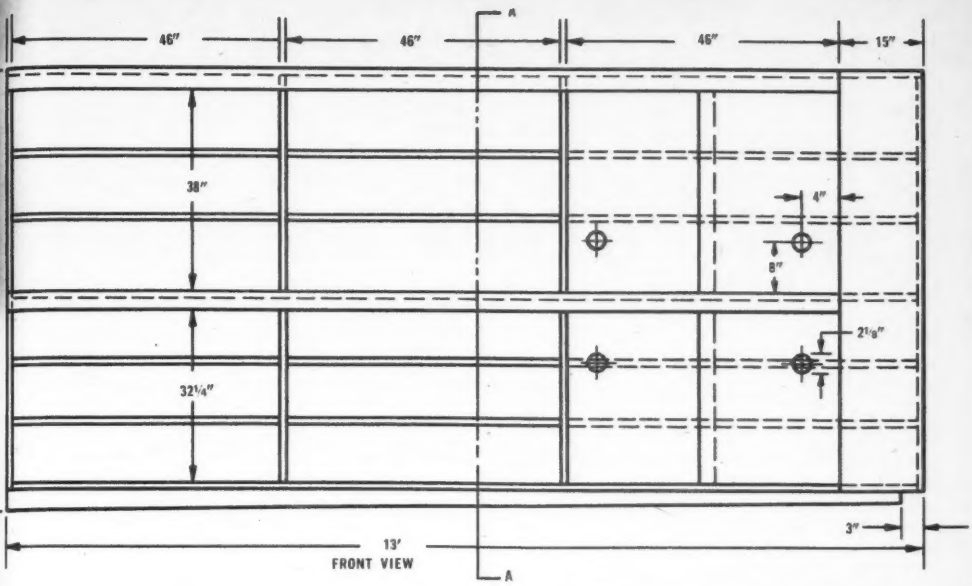
STORAGE WALL unit is assembled, left, with glue and 2-in. nails; part of unit, center, is nailed to the top mounting strip; at right, a ¾-in. Duraply facing strip is installed.

special vinyl sheeting available at lumber yards. Staple it across the furring strips, taking care to keep it stretched tight. The vinyl is then covered over with quarter-inch Duraply paneling which is treated to provide further insulation.

Turning to the interior walls, install ¾x2-inch furring strips in the same manner, except that they are nailed to the wooden studs. These strips are then covered over with $\frac{3}{16}$-inch perforated tempered hardboard panels.

The storage wall, which is the high-

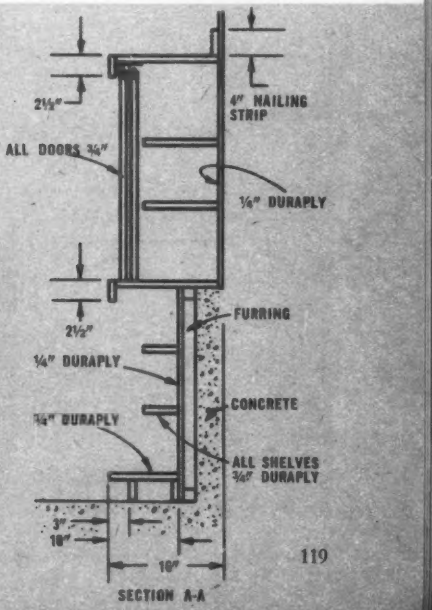




light of our garage, can, of course, be altered in dimension to suit your own requirements. Start by fitting the recessed baseboard, planing the bottom edge so that it will lie flush against the floor. Then nail the board to the cabinet bottom, setting it back three inches.

SLIDING DOORS hang from tracks behind facing strips; butt against the uprights.

In erecting the vertical partitions of the cabinet, space them exactly 46 inches apart. This will enable you to cut two sliding door panels from a four-foot width of Novoply. Install the partitions with glue and coated nails, keeping all edges flush. The length of the storage unit requires that the top and bottom sections be made in two pieces. Make one top and [*Continued on page* 131]



STOP KITCHEN "FALL-OUT"

By Lyman Gaylord

PERHAPS the smartest investment you can make is the few hours and dollars that it takes to protect your home from "fall-out."

The kind of fall-out we're talking about is the kind that comes from your kitchen. Believe it or not, your kitchen is the source of 200 to 400 pounds of airborne grease and from 400 to 1,000 gallons of water vapor per year.

And unless you do something to stop it, the fall-out from that grease and water-laden air is going to cause you a lot of misery and possibly cost a good deal of money in the years to come.

Grease discolors walls, ceilings, furniture, rugs and draperies. It'll cover everything with a microscopically thin, stale-smelling film that's almost impossible to wash off. Water vapor condenses and causes paint to blister and peel. It will rust unprotected metal

Nutone, Inc., Madison and Red Bank Rds., Cincinnati 27, Ohio

VENTAHOOD, 1907 Plantation Rd., Dallas 19, Tex.

NUTONE HOOD-FAN, above, designed for island installation, sells for $62.95 to $84.25.

VENTAHOOD model shown at left is installed over range between wall cabinets.

HOOD, right, contains 8-in. fan, lights, switches, has extra fan knockout; $49.95.

Stewart Industries, Inc., 320 E. St. Joseph St., Indianapolis 2

EXTRA LONG range hood made by Stewart Industries can be custom-ordered to fit any kitchen; is available in seven metal finishes.

surfaces; causes mildew and in time will even spoil expensive veneers and speed timber rot.

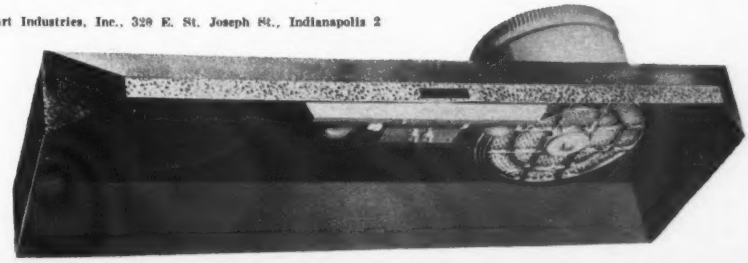
How can you stop this domestic fall-out? It's simple. Just put in a kitchen ventilating system. It's an easy do-it-yourself project that doesn't take much in the way of tools or time or even money.

There's still another reason for doing it and that's your own comfort. A lot of things taste better when you don't smell them while they're cooking. Take onions, cabbage and fish, for example. Then too, the temperatures in the vicinity of "ground zero," your kitchen stove, can be excessive without adequate ventilation.

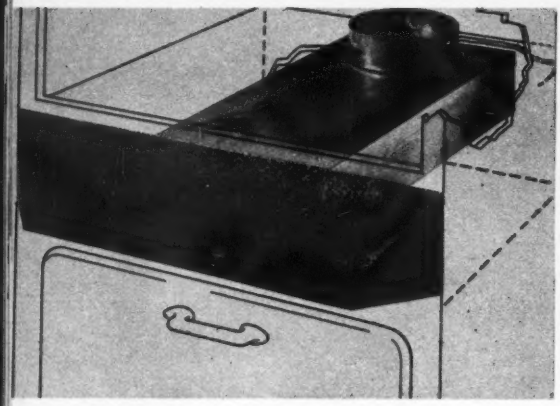
There's nothing complicated about kitchen ventilation. All you need is a fan to exhaust the moisture and grease bearing air out of the house before it has a chance to spread and settle down.

The kind of fan you'll need depends on the physical layout of your kitchen. Obviously you will want to install the

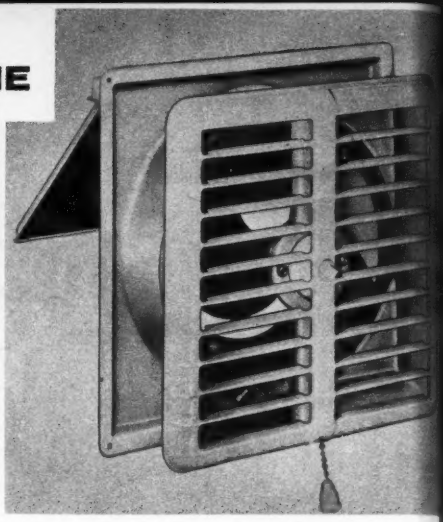
Stewart Industries, Inc., 320 E. St. Joseph St., Indianapolis 2



MODERNIZE YOUR HOME



Stewart Industries, Inc., 320 E. St. Joseph St., Indianapolis 2

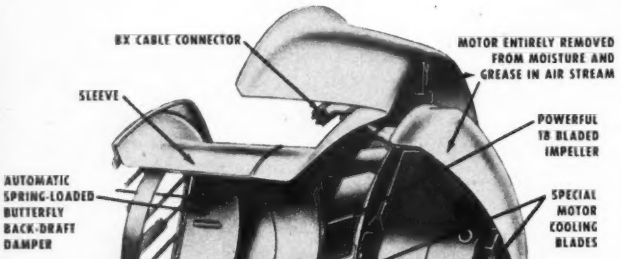


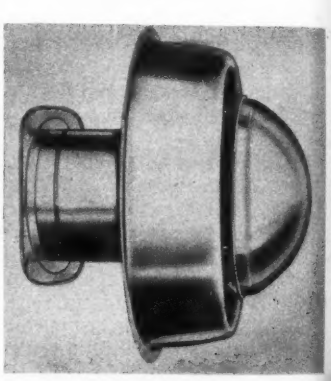
ILG Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 41

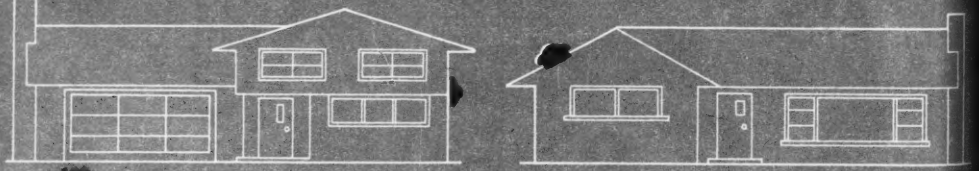
BUILT-IN oven at upper left has Kitchen-aire hood and duct leading to remote air impeller.

EXHAUST FAN at upper right mounts through exterior wall, has an outside weather shield.

DRAWING AND PHOTO show a Kitchen-aire impeller. It is mounted on outside of house.







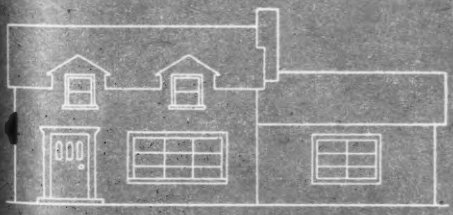
Fasco Industries, Inc., Rochester 2, N. Y.

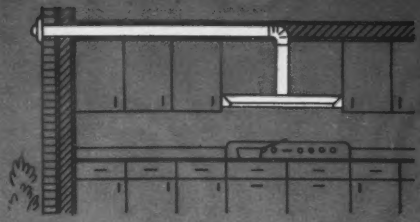
A TYPICAL DUCT-TYPE ventilating fan: can be mounted in range hood or in wall.

fan as close to the kitchen stove as possible. If you're one of the fortunate few who have stoves against outside walls and within three or four feet of a window, you can use an ordinary window exhaust fan. A ten-inch model will do perfectly well in most cases.

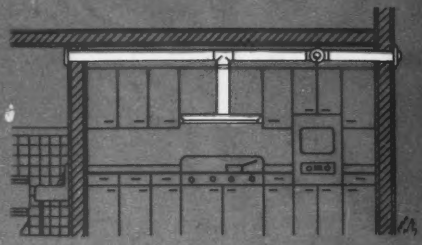
However, if like most of us, your stove is against an inside wall, or no window is nearby, you will have to use a fan specifically designed for kitchen ventilation. Price tags on these jobs start at about $35.

You won't need a very large fan unless you have an extra big kitchen or it's built in the new style without walls separating it from the other rooms. Ventilating engineers agree that the fan should be capable of changing the air in the kitchen area once every two or three minutes. The two-minute change rate applies [*Continued on page* 130]

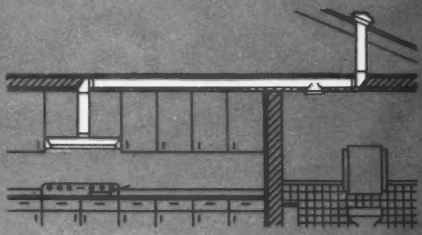




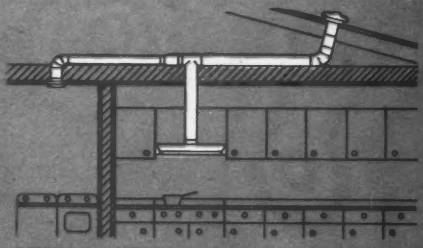
DUCT concealed between joists runs from range to ventilator on outer wall.



VENTILATOR pulls air from bath and kitchen through a duct above cabinets.



ROOF EXHAUST from bath and kitchen with a duct hidden between the joists.



ATTIC DUCT leads air from bathroom and range to a ventilator on the roof.

DRAWINGS, left, show three types of homes with ventilating systems: first, a split-level with between-the-joists duct and exhaust on a side wall; next, a ranch type with attic duct and roof exhaust; last, a two-story with a duct leading to the ventilator on the side.

PICTURE WINDOW

By John O. Bock

TIRED of those old-style windows? Why not replace them with a modern single-pane picture window? It's easy. And you needn't worry about breaking that large pane during installation—your glass supplier includes the setting in his price. All you do is provide the frame. Actual work consists of no more than cutting the frame opening, securing the frame in place and finishing the trim.

1. REMOVE inside trim and stops. Save stops for use later as temporary stops on new window.

2. LOOSEN bottom of frame, then pry off top cap to permit the whole frame to be lifted out.

3. WALL OPENING (½-inch larger than the new frame) is now measured for the picture window.

4. CHISEL plaster away before sawing through lath; otherwise metal-cutting saw must be used.

5. SHEATHING will project beyond siding to form backing for nailing casing of new frame.

First, pry off the inside trim and outside casing of your present window. As soon as the sash weights are exposed remove them by cutting the ropes. Next, pry loose the window stops; these are the narrow strips that hold the window in place.

Now chisel out the old wedges under the sill. A few sharp blows of the hammer on the sill should drive out the frame. Finally, pry loose the top cap and lift out the entire frame.

Before cutting the new opening measure the over-all width of the new frame. If it is less than six feet you have no problem; if it exceeds six feet you must install a brace under the ceiling until new headers have been set in place.

Cut the new opening one inch wider and one inch higher than the new frame; in other words, allow a half inch all around the frame. Lay out your cutting lines on the inside wall with a level. Do not attempt to square off the opening from either the ceiling or the floor.

6. **CUT AWAY** and remove the studding which remains in the enlarged frame area.

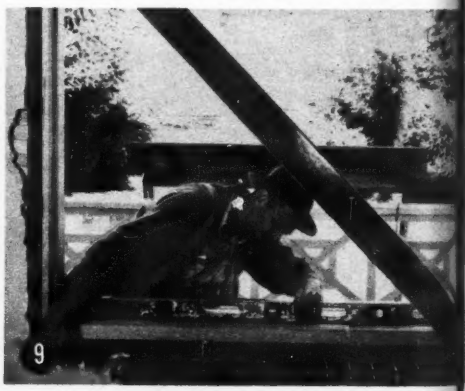
7. **SET** new trimmers in place; they are then measured and cut to support header.

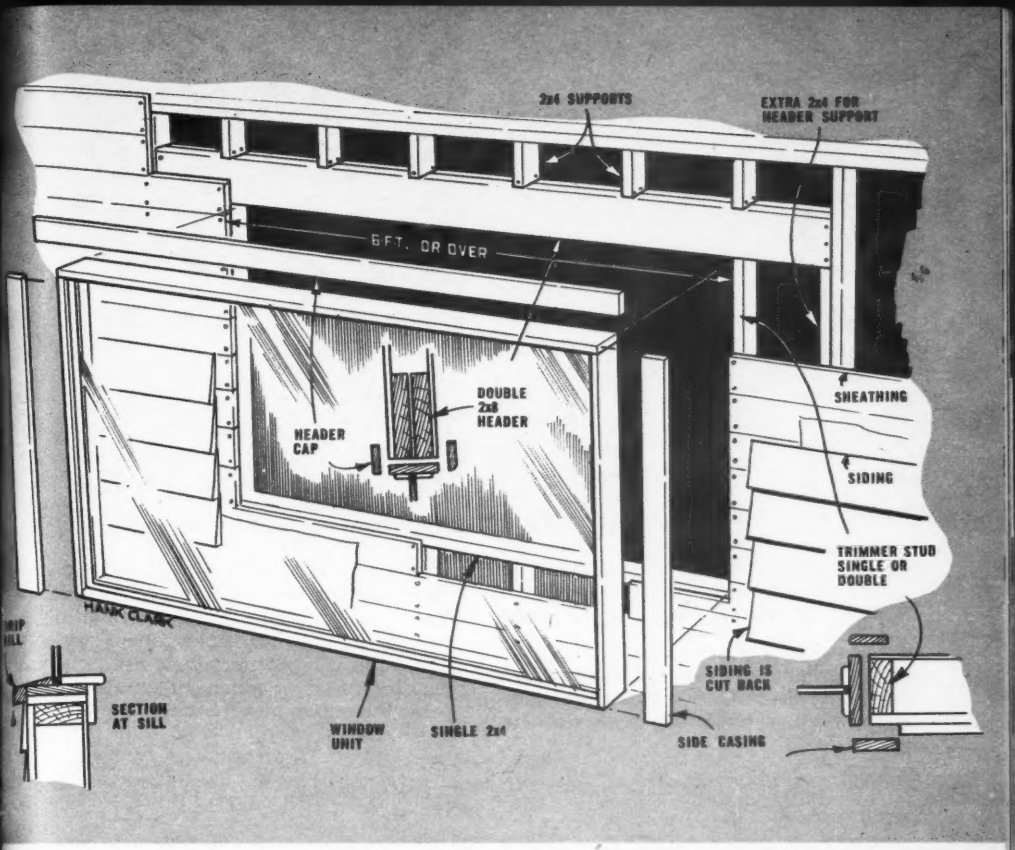
8. **NAIL HEADER** in place. See plans on opposite page for headers over six feet.

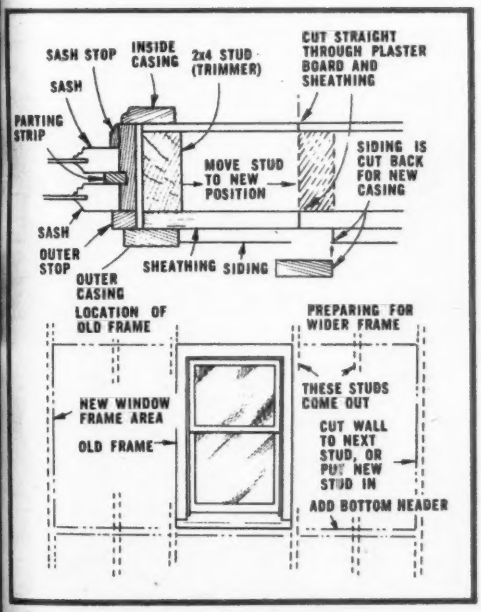
9. **WEDGE** the frame until sill is level. Brace squares frame during installation.

10. **CASINGS** are nailed to sheathing. Siding must butt tightly against casings.

11. **CAP**, measured and cut to size, is now set in position and nailed in place.





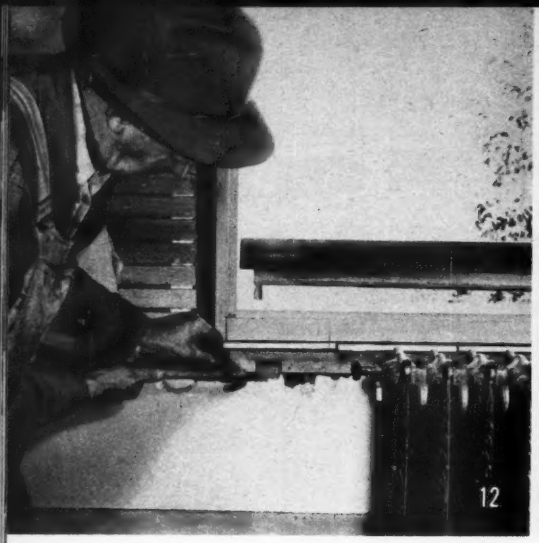


The outside cut is next and is the most critical. Measure the width from the *outside* of the casings using a level to mark your cutting line. Tack a strip of wood along this line to act as a saw guide. This cut is made through the siding only—not through the sheathing. Saw carefully, for a neat job will depend on the siding butting against the casing snugly. The cut through the sheathing is now made. Lay out this cutting line to the same measurement as the opening on the inside wall.

The header is nailed into place next (see drawing for construction details of two types), and then the new trimmers.

The opening is now ready to receive the frame. Check the frame for squareness and brace it if necessary. When set in place, check the frame with a level. Raise or lower the frame as necessary by driving small wedges under the sill. When the sides have been checked, nail the casings to the sheathing.

[*Turn page*]



12

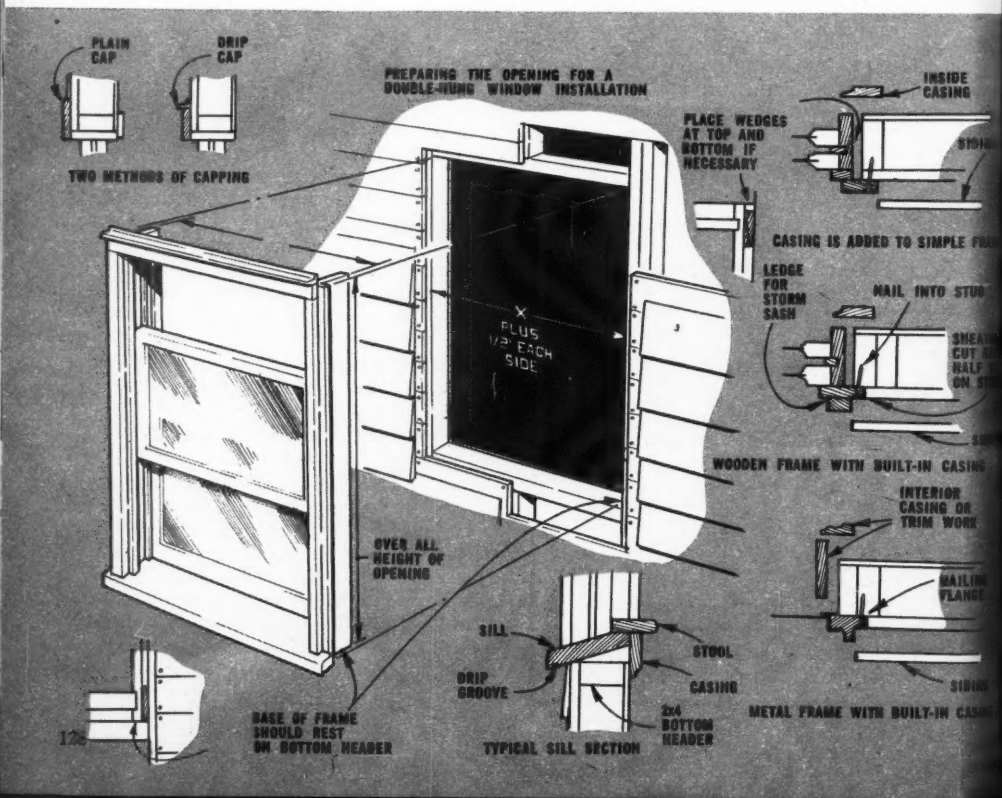
13

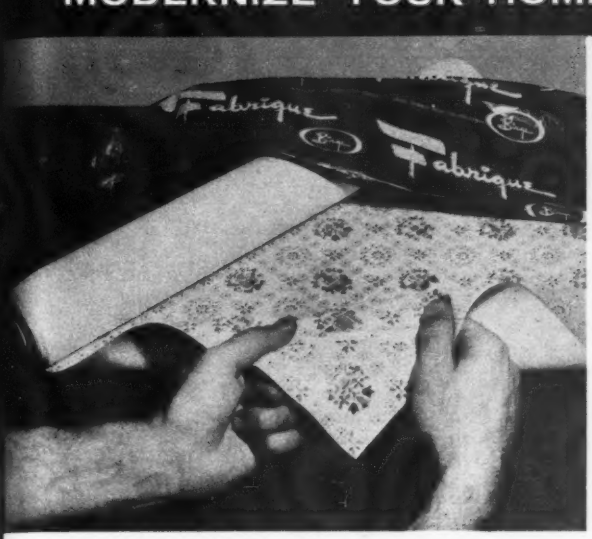
12. ADDITIONAL WEDGES should now be placed under the sill. You may also need to drive in a filler block at this point.

13. BROKEN PLASTER around the new frame can be repaired either with patching plaster or with new wallboard as shown here.

At this point call the glazier to set the glass. He will use the temporary stops that you provide. After installation you can cut and fit the permanent stops.

For the inside trim, finish with wood molding. Plaster patch all breaks and paint the entire picture-window wall to finish the job. •

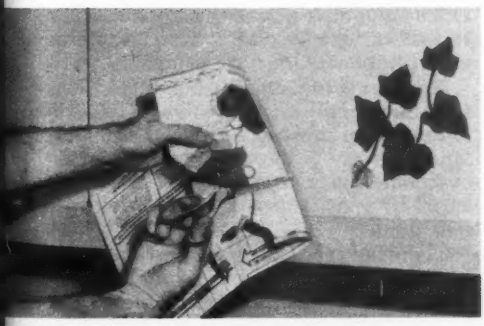




The Birge Company, Inc., 390 Niagara St., Buffalo 5, New York.

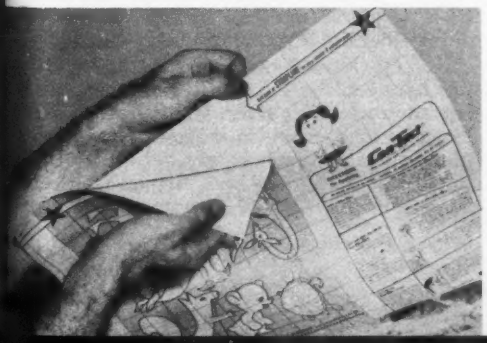
FABRIQUE is a new vinyl-impregnated wall paper. Ink stains are easily removed with plain water. Naphtha takes out crayon and lipstick marks without harming the surface. Can be folded when "pasted" and shows no wrinkles after application. Made in 41 patterns.

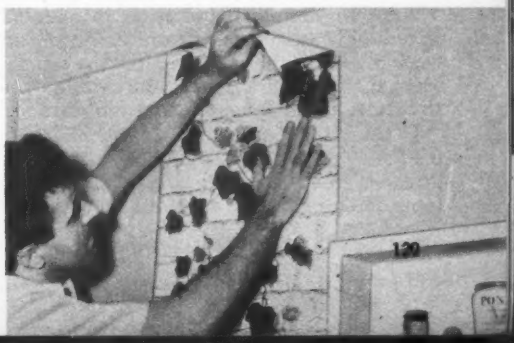
New Wall Coverings



CONTACT is a waterproof, washable plastic with a pressure-sensitive adhesive backing. Can be used to decorate or "paper" any smooth wall surface. Leaves (left) are cut from leftover pieces to decorate a cabinet. To use, the paper backing is peeled off to expose the adhesive. Hand pressure is all that is needed to apply.

Cohn-Hall-Marx Company, 40 W. 40 St., N.Y.C. 36





Stop Kitchen "Fall Out"

[*Continued from page* 123]

only to very small kitchens and in cases where extra large amounts of grease and moisture are present—as they would be if you had an unvented clothes dryer installed in the kitchen and you're addicted to french fries and fried fish and chicken.

To find the exact size you'll need, just calculate the cubic volume of the room and divide by the desired change rate (two or three). The answer you'll get will be the number of cubic feet of air your fan will have to move every minute to do the job right. For example, a 10x15x8-foot kitchen would need a fan rated at 400 cubic feet per minute (CFM to the engineers). A much smaller one wouldn't have the pulling power and a much larger one would turn the place into a wind tunnel.

The easiest way to put your fan up is to mount it through the wall behind your stove. It should be a foot or so above the stove top. You can only do this, however, when the stove is along an exterior wall. And you've got to make a hole in the wall.

This type of installation is easy enough if the outside wall happens to be made of wood. If it's brick, matters are a bit more complicated. In this case, take it easy: put down the sledge hammer—it won't help. Instead, chisel away at the mortar around a single brick until it's loose enough to pull out. Now you have enough room to hack away at the other bricks until the hole is the right size.

Mounting the fan itself is simply a matter of fastening it to a rigid surface and screwing its component parts together. Some fans are secured in place by screwing through an outside flange to the wall. Others are mounted by securing the sleeve to an exposed stud. If you have this type, plan your hole through the wall so that you'll bare a stud when you're making it. Or, you may have to make a 2x4 frame to which to attach the fan.

Another simple installation is possible with single-story houses and can be used regardless of the position of the stove. Here the fan is mounted in the ceiling over the stove and it is vented through the roof.

If there's an attic above, you can still use this method. All you have to do is attach a duct to the discharge end of the fan. Then bring the duct out through the attic roof. A weather-proof cap should be placed over the vent. Also be sure to calk around the duct where it goes through the roof. This applies to through-the-wall jobs too.

If the through-the-wall or ceiling methods just described are out of the question, you still have a number of choices, all of which involve the wall or ceiling. Only this time we are talking about installing the fan in one or the other and not through them.

The arrangement that is least troublesome is to mount the fan in the ceiling and use a horizontal duct discharge rather than the vertical deal already described. You can hide the duct between the joists of the floor above or between the rafters of a single-floor house. The duct is run out to any suitable discharge point. Again, you should use some sort of cap at the end of the duct and if it faces the prevailing wind it might be a good idea to get a cap with a wind deflector.

If this doesn't appeal to you, you can mount the fan in the side wall between studs. A length of duct can then vent the fan through the roof or an eave. Another possibility is to run the duct up through the stud space until you hit the between-the-joists-space of the floor above. Then extend the duct across the kitchen ceiling to a safe discharge point. This last method is as complicated as you would get.

Another thing about using ducts. If the total duct length is going to be on the order of ten feet or more, get the next size larger fan. Or buy a blower type designed to overcome the friction (called "static pressure" by ventilating engineers) set up by long ducts.

There's no reason why your fan must be installed at the kitchen or intake end of your duct. It can just as well be mounted at the discharge end. There are certain advantages as well as disadvantages to doing this. Noise reduction is on the credit side. Obviously, the more distance you put between the fan and the kitchen, the less motor and air noise you'll hear. The disadvantage to this is that you'll have to plan things so that you can get at the fan to clean it once in awhile. If you want to go in for this sort of remote fan setup,

Stop Kitchen "Fall Out"

you'll be better off using a propeller type fan than one of the blower type.

Just to prove that there's more than one way to skin a cat, you can still have adequate ventilation even if you can't have the fan vented to the outside air. The trick is re-circulation of the air through a closed circuit with a built-in air filter. For instance, you might mount the fan in the ceiling over the stove and run a duct through the overhead joist space to the opposite wall.

There's even a way out for those who don't want to mess with tearing apart walls or ceilings to hide duct work. For instance, if you have a kitchen cabinet over the stove, you can mount the fan in the bottom shelf. Your duct can then be hidden in the cabinet. The cabinet will naturally have to run all the way to the wall or ceiling to provide continuous concealment to the end of the duct. Chances are, however, that you can use some more cabinet space and this is as good a time as any. One particularly neat way of doing this is to attach a kitchen range hood to the lower shelf of the cabinet over the stove. It'll help collect the grease and vapor and will increase the efficiency of the fan. When you do this, you will have to make a suitable cutout in both the hood and shelf for the fan air intake.

In any kitchen ventilating fan installation you will have to do a certain amount of electrical work. There's not much to it, however. About all you'll have to do is tie into a nearby junction box or run a line in from a panel. In any case, use flexible BX cable for safety's sake. Have your wiring checked by a professional if you do it yourself.

There are two types of fan switching arrangements. In the wall type fan the switch is usually an integral part of the fan. Often it's a pull chain that also opens a trap door over the fan discharge when you pull on it. For ceiling fans a remote switch is used and it can be installed in the wall near the stove or wherever is most convenient. •

When answering advertisements please mention
MECHANIX ILLUSTRATED

Storage Wall

[*Continued from page* 119]

bottom section eight feet long and the others five feet.

The longer top storage unit is installed first. Attach a ¾x4-inch wood strip to the upper wall along the full length of the unit. Make sure the strip is level and mount it at the correct height with coated nails. Now mount the upper cabinet section and nail it to the nailing strip. Nail the bottom of the upper cabinet to the furring strips below. Finally, nail the rear base mounting strip to the wall, making sure the upper edge is level.

To mount the bottom unit, line up all vertical partitions with those of the upper cabinet. Hold the cabinet against wall with the front edges flush and nail the bottom to the rear base mounting strip; then nail the upright partitions to the bottom of the upper cabinet unit. Again check all parts for true and plumb and, if necessary, plane the front edges flush.

A packaged set of Stanley Sliding Door hardware (number 2800) was used to mount the sliding doors. Fit and mount the tracks $\frac{1}{16}$-inch in from the front edge at the top of the upper and lower units.

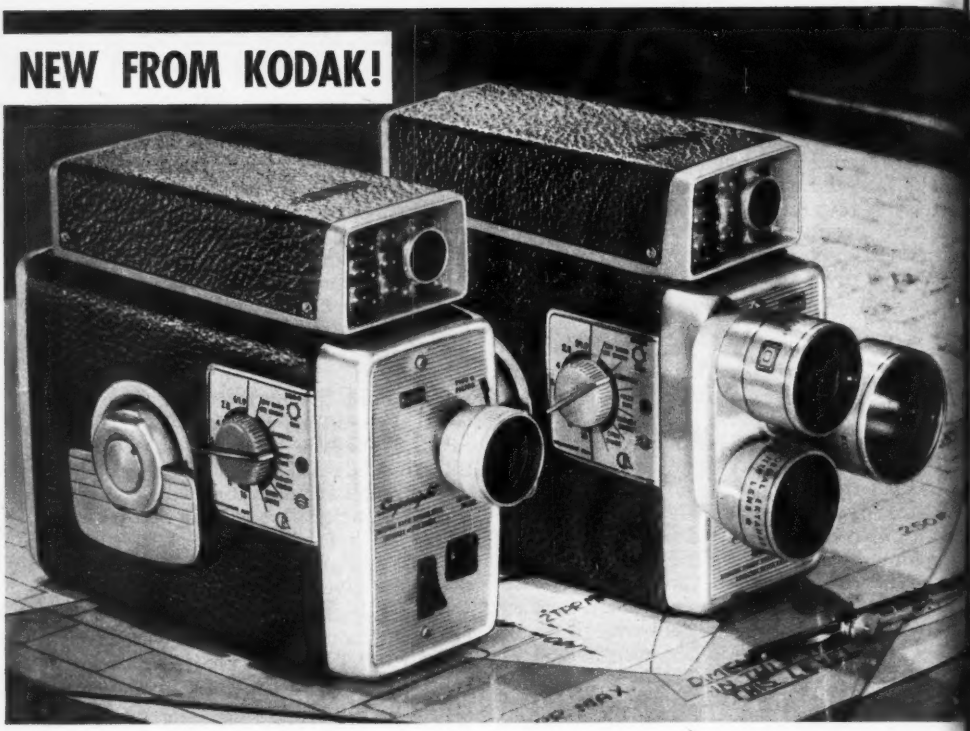
Next, cut and fit the sliding door panels and follow the manufacturer's instructions on installing the door hangers and plastic floor guides.

The folding workbench is made next. The top measures 36x48 inches and consists of three sections: a two-inch-wide back strip and two 17-inch-wide top sections. All parts are hinged together with a 1½-inch brass piano hinge.

To make the bench-top support, cut a piece of ¾-inch-thick Duraply. After rounding all edges, cut a finger grip three inches from the top and 1½ inch from the front edge. The knee cutout will be 1x3 inches. Mount this support to the wall with the piano hinge. Now mount the bench top.

In order to have ample electrical outlets throughout the garage, the author installed the Pierceway Multiple Electric Outlet System. The system is properly grounded and has two- and three-way receptacles.

As we said before, anybody can do a job like this—so get to work and make your small garage something more than just a place to store the car. •



Brownie Movie Cameras with

***Automatically* shows you when exposure is right . . . lets you make beautiful color movies, reel after reel**

With these new Brownie Movie Cameras, you get wonderful 8mm movies, scene after scene!

For the built-in exposure-meter pointer tells you when the exposure is correct—*while* you shoot! You don't have to take time out to compute settings. No need even to take the camera from your eye!

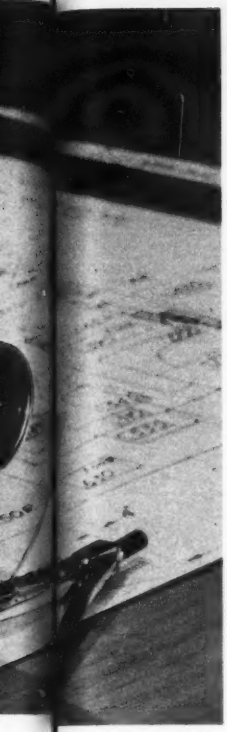
Handsome and compact, these new Brownie cameras have true telescopic viewfinders with eyepiece adjustable to user's eye . . . built-in Skylight and Type A filters . . . easier loading mechanism . . . automatic footage indicator. 3-lens model has new, easy-swing turret. Here are movie cameras unmatched for value!

Ask your photo dealer to demonstrate the new "Exposure-Meter" Brownie Movie Cameras with fast *f*/1.9 lens. Many dealers offer easy terms.

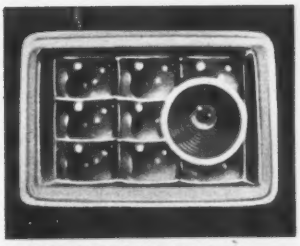
Brownie Movie Camera, Scopesight *f*/1.9 (Exposure-Meter Model), $79.50. Turret Model, $99.50.

(Prices are list, include Federal Tax, and are subject to change without notice)

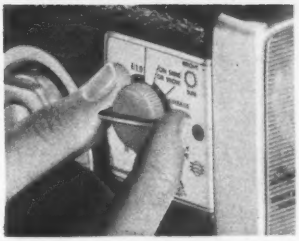
EASTMAN KODAK COMPANY,



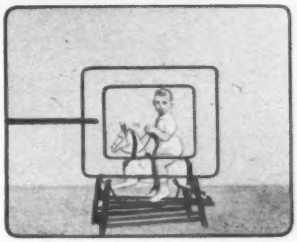
Coupled photoelectric exposure meter measures light as you shoot. The meter pointer is visible in the viewfinder.



Exposure-control knob lets you adjust meter pointer while you shoot. No need to take camera from your eye.

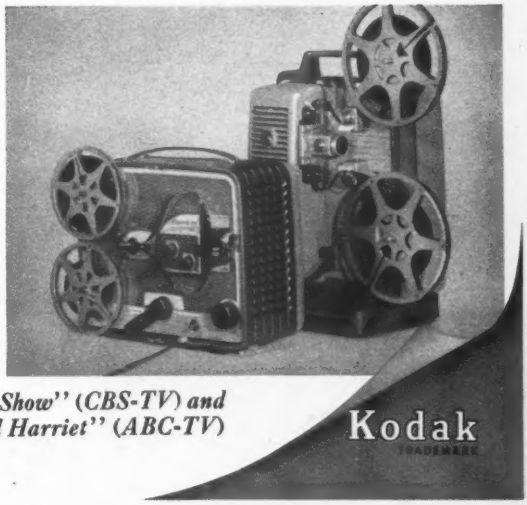


Perfect exposure before your eyes—simply by centering pointer in viewfinder. Multi-frames show fields covered in standard, wide-angle, and telephoto views.



built-in exposure meter

Projector mates for new Brownie Movie Cameras
Brownie 500 Movie Projector for sharp, brilliant, big-screen movies, $79.50. New Kodak Showtime 8 Movie Projector (right) has 750w lamp for *extra-brilliant* screen image, shows movies 5 feet wide at 20-foot distance. Includes new built-in Presstape Splicer for clean, dry, "weld-strong" splicing without cement. $174.50



See Kodak's "The Ed Sullivan Show" (CBS-TV) and "The Adventures of Ozzie and Harriet" (ABC-TV)

Kodak
TRADEMARK

Rochester 4, N.Y.

Monthly PHOTO Contest

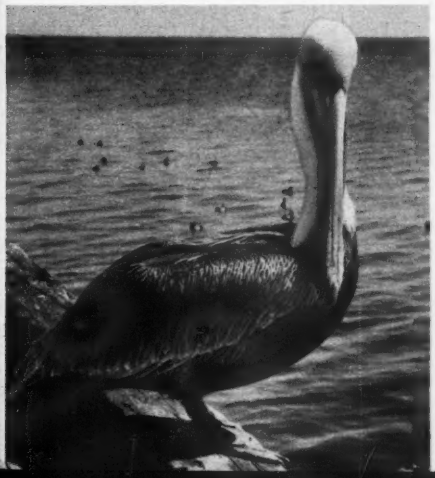
Please put your name, address and picture-taking date on back of each print. Wrap with cardboard stiffeners and enclose a self-addressed stamped envelope or postage for return of unused photos. Prize-winning pictures are not returned. Judges are MI Editors. Duplicate prizes awarded in case of tie. Address entries to: *Mechanix Illustrated*, Photo Contest, 67 W. 44th St., N.Y.C. 36.

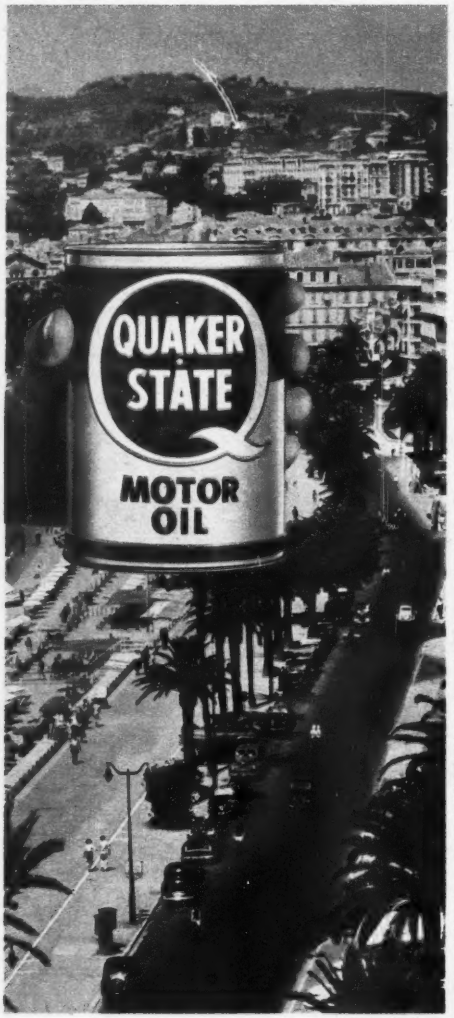
1st Prize ($25) .....PEARLY WEB
Gary Warstler, Navarre, Ohio, shot dew-coated web with a Rollei: f-16, 1/25th.

$10 Award .....LIGHT AND SHADOW
Tom Atkins, Naval Air Station, Anacostia, D. C., set his Graphic for f-8 at 1/50th.

$10 Award .....MANHATTAN SILHOUETTE
Rolleiflex and Plus X film were used by Dick Hanley of New York; f-16, 1/100th.

$10 Award .....BIG BILL
Dave Binns, Clearwater, Fla., used Yashica to photograph pelican; f-16, 1/100th.





CANNES, FRANCE

Big news on the road today is Quaker State! In every state and in 19 different countries, people who care for their cars drive with Quaker State—the years-ahead motor oil designed for longer-lasting lubrication in all car engines. Wherever you drive, insist on Quaker State . . . *it's the best motor oil money can buy!*

QUAKER STATE OIL REFINING CORPORATION, OIL CITY, PA.
Member Pennsylvania Grade Crude Oil Association

New Garage Doors

[*Continued from page* 106]

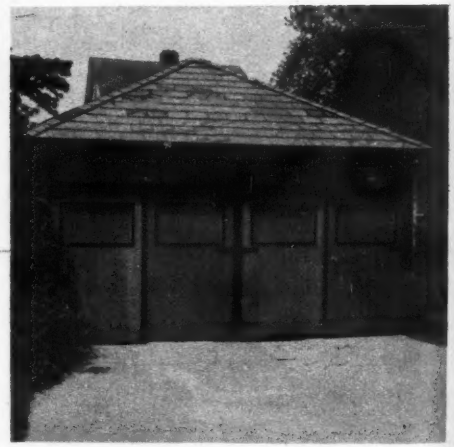
To lower the door frame to the lower height of the new doors, double 2x4's are set between center and end posts into which half-inch notches have been cut to better seat these horizontal beams. Be sure to check the true of these 2x4's with a level before fixing them permanently in place.

The final stage entails framing the transom and installing the Resolite panels. Rabbeted pine strips measuring ½x¾ inch are nailed into place on transom and doors. Having ordered the Resolite panels cut to size (⅛ inch smaller than their frames) they are set into a cushion of glazing compound and backed with ¼x⅝-inch wood strips.

Installation of door holders and a cylinder lockset brings the job near completion. This is also a good time to install an outdoor light to the centerpost just under the front eave. For the sake of convenience its switch can be installed on a post bordering the driveway, thus permitting the driver to turn on the light before approaching the garage.

The addition of door stop molding and trim plus two coats of spar varnish on the doors and paint on the trim will bring an end to your labors—but no end to the admiration from your neighbors. •

NEW GARAGE DOORS with matching transoms have given garage a new lease on life.



WHAT DO YOU LOOK FOR IN BATTERIES AND ANTI-FREEZE?

If you follow the example of the men at Chrysler Engineering, you'll have a lot of things to look for in specific detail. In MoPar batteries, for example, the extra attention to detail has led to these important developments:

Positive grid plates are sealed by a silver cobalt coating, increasing the resistance to overcharging (the cause of most battery failures) by 300%, and reducing the corrosion of grid metals. MoPar's spun-glass insulation insures a constant supply of electrolyte at the positive plates by its constant wicking action – further protecting battery life.

You can get both dry and wet charge MoPar batteries. Why not ask for a free battery check at your local Plymouth, Dodge, De Soto, Chrysler or Imperial dealer – and, at the same time, ask about the liberal allowance for your old battery.

Equally rigid requirements apply to MoPar anti-freeze. If you list what a good anti-freeze should do, you'll find that it should do a lot more than just give highest quality cooling system protection at the lowest possible price.

It should also:

1. Protect copper, brass, aluminum, solder, steel and cast iron from corrosion.

2. Resist turning to acid or becoming gummy or rancid.

3. Effectively inhibit rust and water scale.

4. Remain uniform in storage or use.

5. Contain no injurious chemicals such as salt, glucose or petroleum.

6. Mix instantly with hardest water—and with other types of anti-freeze.

7. Have no harmful effects on rubber.

To set up such requirements for *MoPar* anti-freeze, Chrysler engineers demand a product that surpasses *both* U. S. Bureau of Standards specifications and S.A.E. standards. When you get MoPar anti-freeze – either permanent or methanol type – you get guaranteed, Chrysler-engineered performance.

You *always* get guaranteed performance, backed by Chrysler Engineering, when you specify *MoPar* products – complete bumper-to-bumper parts and accessories for all Chrysler-built cars.

Genuine Chrysler-engineered MoPar products are available at all Plymouth, Dodge, De Soto, Chrysler or Imperial dealers—and at leading independent repair shops.

MoPar
PARTS & ACCESSORIES

MoPar Division
Chrysler Motors Corporation
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CAR CARE

EMERGENCY EQUIPMENT

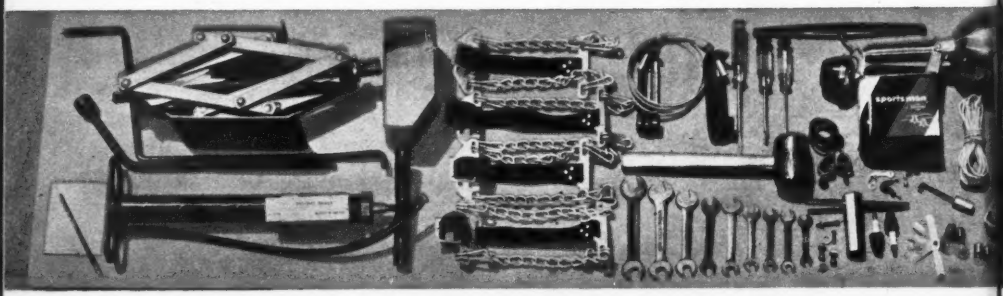
By Frederick C. Russell

Member, Society of Automotive Engineers

Kempo Flare Kit, Chempounders, Mt. Vernon, N. Y.

WHETHER it opens with a key, or automatically at the touch of a button inside the car, the luggage compartment is the secret of freedom from worry when you run into a motoring emergency. The way trunk space is stocked will depend on whether you'll be able to figure your way out of roadside trouble—or be stranded.

Millions of cars are rolling the highways with little more than



THE WELL-EQUIPPED KIT: pencil, pad, jack, pump, block, tire chains, tow cable, screwdrivers, mallet, wrenches, spark plugs, alligator-clip wire, wiper, lantern, bulbs, points, condenser, fuses, rope, clothespin, gas tank cap,

EXTRA SPARK PLUGS and socket wrench to fit them are good to carry in tool kit.

PICK UP a spare set of points, a condenser and some fuses for emergency use.

SCISSOR JACK is a little harder to use than a bumper jack, but it's a lot safer.

REPAIR KIT for tubeless tires seals the holes left after removing embedded nails.

Patch Rubber Company, Akron, Ohio

the barest of tire-changing equipment, but they're headed for trouble. Every experienced motorist knows that many a breakdown has been outwitted by the gadgets carried along for just such emergencies. Even a length of heavy cord or a piece of wire in the tool box can be the means of hurdling an obstacle.

Realizing this, the accessory world has come up with some highly

gloves, spare gas can, flares, sand, trowel, flashlight, fire extinguisher, scissors, tire repair kits, siphon hose, first aid kit, sealed beam light, water distiller, oil, cup grease, brake fluid, spout, sponge, fan belt, tool box.

Meritte Industries, Inc., New York, N. Y. Crystal Research Lab., Hartford, Conn.

SMALL EXTINGUISHER, left, is great asset if fire breaks out in electrical system; squeeze bottle, right, has unit which distills tap water for addition to the battery.

SPARE CAN OF GAS, left, can come in handy—especially if you're driving where filling stations are far apart; length of wire with alligator clips, above, permits bypass of ignition switch if key is lost.

desirable things designed to take the ache out of breakdown. These range all the way from trick gadgets that pinch hit for tire chains to raincoats for the convertible's top. Some of the new equipment points up the fact that many cars are poorly prepared for possible trouble. If you don't believe it, just picture the millions of cars which have no repair kits for mending tubeless tires.

What to carry along need not be a tax on your imagination. Enough motorists have been through the mill! Briefly, your emergency "stock" breaks down into three general categories. First, there are the large pieces, the jack and lug wrench. Second, there are the smaller but often desperately needed familiar items, a screwdriver, pliers and spark plugs, [*Continued on page* 144]

CAR KINKS

REFLECTIONS on car dash can be killed by "flocking." Right: How it is used to dress up a door before trading. Flocking consists of applying an adhesive to surface and then blowing fine rayon or cotton fibers over area by means of special gun. A flocking kit is available from Coast Industries, 15133 So. Broadway, Los Angeles, Calif.

OIL applied behind trim stops rusting. Left: Doors kept at half-latch allows weatherstripping to regain resiliency.

The Amateur Telescope Maker's Page

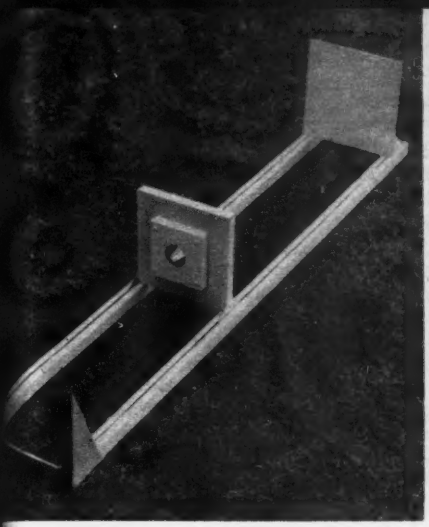
SUN 'SCOPE

SUN 'SCOPE uses music stand as prop. Lens assembly slides along track to focus image.

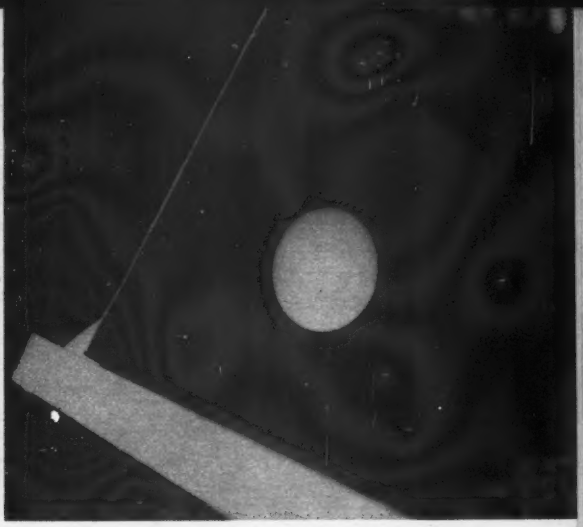
AN astronomical telescope is not suited for sun observation because the intense heat can blind the observer. Thus, the image cannot be safely viewed unless the sun's disk is blacked out or a dark filter is used.

These problems are overcome by a sun 'scope which is attached to the telescope and projects the sun's image on a screen.

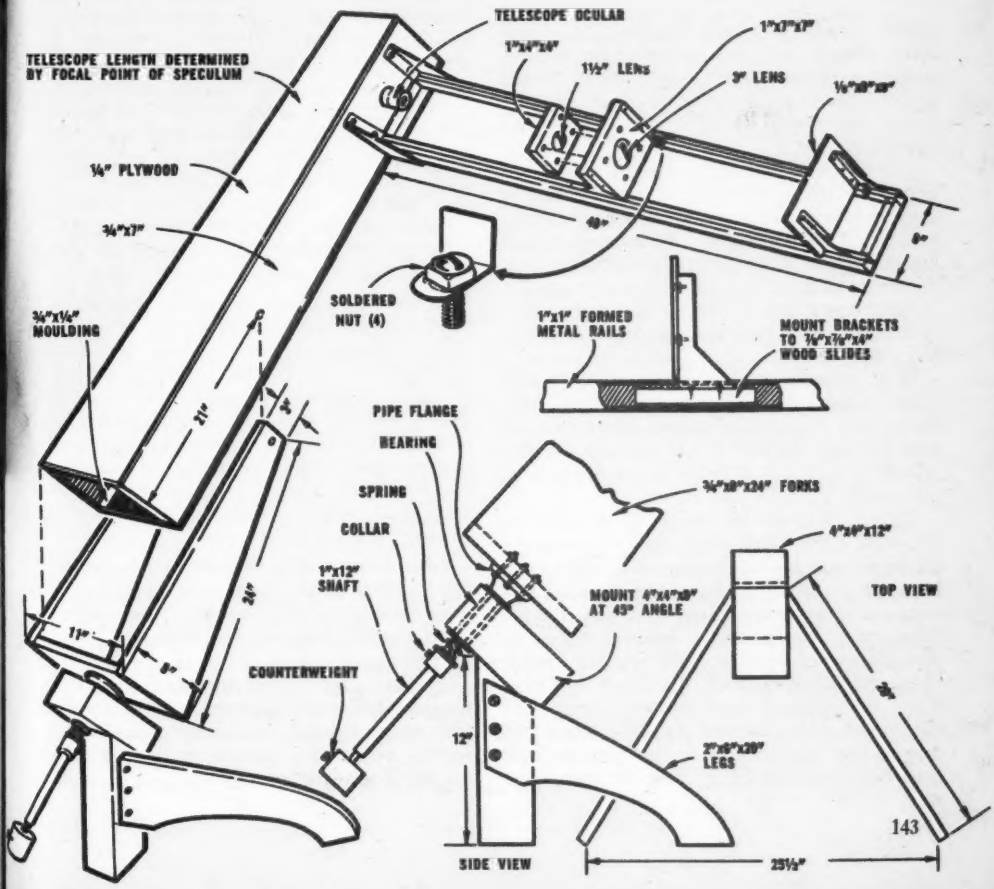
To make this device get two lenses at least 30mm in diameter with a focal length of from five to ten inches. They may also be as much as four or five inches in diameter and of short focal length; lenses varying from 1¼ inches to five inches in diameter may also be used. The framework holding the two lens assemblies and the screen is of thin [*Continued on page* 166]



ASSEMBLED sun 'scope shows flange which fits over ocular adapter of the telescope.



SCREEN at end of sun 'scope slides along track to achieve the desired enlargement.



[*Continued from page* 140]

Campbell Chain Co., York, Pa.

TRACTION KLIPS are designed to get a car out of a slippery spot without chains. Clips are quickly removed with a special tool.

which can be put into the tool kit. And third, there are the assorted articles—some novelties—which may come in handy or which in one way or another supplement the work which other pieces of equipment do.

For years Cadillac has been supplying owners with a wooden wedge which is used to block one of the car's wheels when a tire is being changed. In its spot, while being carried in the luggage compartment, it serves to hold the spare more securely. A newcomer is a cover for the spare tire. Inside the car it provides pockets for holding small tools.

How would you replace a chromed wheel cover? If you attempt to use anything but a rubber-headed hammer you will damage the cover. If you rely on fist power you won't put the cover on tightly and probably will lose it.

Detroit was in its teens when I drove through New York City using a piece of string to operate the choke one cold morning, but since then I have figured that the occasion may arise when just about anything may be needed. Several times in the process of making road repairs I have used the scissors from the First Aid Kit. Even its surgical tape came in handy the day vapor lock hinted of an air leak around one of the connections of the flexible fuel line between the main fuel line and the pump. Tire tape is also handy for checking a leak in a radiator or heater hoses.

Once when the windshield wiper refused to stop a friend of mine used an old-fashioned clothespin to pinch the suction line. It prevented the wipers from scratching the glass. I think this also reminded him to always carry a spare wiper blade. You just never know when the most simple article will come in handy to get you out of a scrape. With a plastic bottle and a length of rubber hose you can siphon off gasoline from a willing motorist's tank. Just insert one end of the line in the tank and the other in one of two openings in the bottle top. Squeeze the bottle, place your finger over the other openings and then allow the bottle to return to its normal shape.

There are a variety of combination fire extinguishers and tire inflators available. Some of them are also effective for drying wet ignition parts. Press the button, direct the spray on the engine and things will be dried out pronto. Latest traction aid on hard-packed snow or ice is a special cylinder gun which shoots crystals under the spinning wheel. New is a quick-on cross-chain with spring steel bands that grip the tire. Similar and most effective is the large metal clip which can be pressed over the tire and is then pried off after the car has left the slippery area.

In the luggage compartment you should have a *good* bumper jack of the tripod variety (personally we prefer a scissor jack—Ed.). I still think it is a smart idea to carry a screw-type under-axle jack for lifting the rear end of the car when heavily loaded. You can start the jacking with the bumper jack and then switch to the other. Chances are that the spare won't have enough air when you are obliged to use it, so carry a good tire pump.

I don't know why so few tourists remember to carry along spare spark plugs. They may come in mighty handy if the roadside shop doesn't happen to have the proper plug for your car.

A smart idea is to carry a factory service manual for your particular car. It offers that exact guidance so badly needed when having adjustments made to the car while off the beaten track. •

Wear Tomorrow

[*Continued from page* 76]

fashion foreseen by authorities. Declares Mr. Bacharach: "The changes to come will be utilitarian, not merely a different look. Everything in apparel runs in cycles. We have now reached the zenith of durability in clothes. A suit has a life expectancy of some eight to 12 years. Soon the corner will be turned and suits will have shorter and shorter lives on the theory that men will welcome a good deal of variety in their wardrobes.

"The ultimate in that phase of the cycle would be a suit a day. That's right, inexpensive, disposable suits to be tossed in the wastebasket instead of the hamper.

"There will be no buttons to come loose or to lose on these clothes of the future. A small magnet fastened to each side of the jacket will keep the front closed."

Surprisingly, paper clothes are being produced right now. At the Kimberly-Clark Corp. in Neenah, Wis., technicians are balling up their spattered laboratory smocks and tossing them into a trash can.

These experimental paper clothes can be draped, printed, silk screened and cut and sewn like any other fabric. They can be made to specifications, varying in strength, appearance and texture, and can also be rendered water and flame resistant.

Nor is Kimberly-Clark the only firm experimenting with paper wearables. Cincinnati Industries, Inc., has made a paper bathing suit and a man's coat and jacket—Ivy League style. Synthetic resins make the material waterproof and opaque. Color can easily be added to this paper fabric, called X-crepe, and the surface can be embossed or printed. It can also be worked exactly like cloth, with sewing, cutting and fancy stitching.

How else can male garb be improved for greater comfort and more efficiency? Officials at Burdick-Rowland Associates, a noted firm of industrial designers, offer these future possibilities.

They suggest a suit made entirely of netting (with the vital areas covered, of course). No part of the netting would touch the wearer. The material would be suspended about a half inch from the body by a simple wire arrangement or small suction cups. What could be cooler for long suffering males in summer?

Another suggestion is clothes with air vents built into them for maximum hot weather comfort. These vents, or air scoops, could be attractively designed and made a part of the suit's pattern.

A small built-in air-conditioner and dehumidifier operating on transistors would be useful. The jacket housing the device would have to be lightweight and airtight with the neck and sleeves closed.

Communications could also be simplified in the clothing of the future. Ben Fromkin, a Burdick-Rowland designer says, "Why not a two-way telephone built right into the suit, powered by solar light?"

The experts did a lot of cogitating about how to improve men's shoes. Mr. Fromkin suggests, "Why not high heels which contain a liquid shock absorber. The idea is that each step would not jar the body as much as it does now. The shock absorber would give you a little spring as you walk and the constant battering would be removed from the spinal column, doubtless resulting in fewer backaches."

Bernard Lazarus, president of King-Size Footwear, a mail order house selling jumbo brogans, thinks stretchable clothing can be an answer to your weight problem. When you gain a few pounds, he reasons, your pants don't come together in the middle and there's a tailoring bill for letting them out. Stretch clothing, suits made of an elastic material, would easily accommodate the extra pounds.

What about the vast field of miracle fibers? The authoritative Consumer Reports predicts fibers that will make it unnecessary ever to press or clean a suit. And Dr. Carrol A. Hochwalt, vice president for research, development and engineering of Monsanto Chemical Co., says true synthetic protein fibers may be in the offing.

"These and other test tube fibers still to come," he says, "will bring new concepts of fashion comfort and economy to the world of fabrics. Filmier than the most gossamer silks, or heavier than the most rugged woolens, they will be practically immune to the effects of age, weather, sunlight and the ravages of insects and decay."

That, men, is our long-term fashion forecast predicting our New Look. Fashionwise, things are looking better for us—or at least different—at long last. •

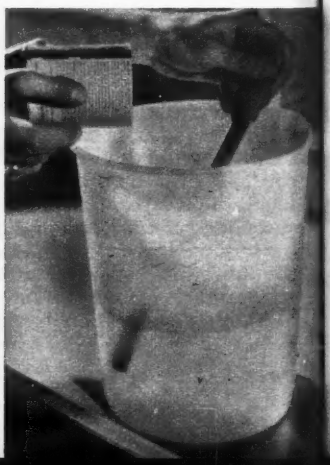
"POLY" BUCKETS IN THE DARKROOM

REGARDLESS of how simple or elaborate a darkroom setup you may have, an inexpensive polyethylene bucket will be a great help. You can get one in a six-quart size for about a dollar and, since it is acid-resistant and virtually unbreakable, it should last indefinitely. When you have put it to all the uses shown—and more—you'll wonder how you ever did without it.

—R. Capotosto

FLEXIBILITY of polyethylene plastic enables you to squeeze bucket and form spout for pouring solution into large bottle.

LEFT TO RIGHT: Want to bring a solution to working temperature? Fill the bucket with water and immerse your storage bottle. Need a slop bucket? Polyethylene washes clean, won't retain odor. Mixing solutions? Large batches are easily prepared in the bucket.



HO 4S-3G Sikorsky, used by U. S. Coast Guard for air-sea rescue, shown here over Long Island Sound.

Q. Why do more aircraft the world over use Champions than any other spark plugs?

A. In the air dependable power is vital! To get that same dependable power in your car, put in new Champions every 10,000 miles. You'll save gasoline, too!

World's favorite spark plug—engineered for every car built by Ford, General Motors, Chrysler, American Motors, Studebaker-Packard and every major foreign maker

CHAMPION

[*Continued from page* 64]

purely for styling reasons. Now it's interesting to see the trend being reversed, as the fact sinks in that fins are more than just ornaments. I have driven many cars at high speeds, with and without fins, and I can definitely state that correctly-designed fins do a lot to combat high-inertia wobble in buffeting cross-winds. I am glad to see them coming back into "style" again on the GM cars and, particularly, on this year's Buicks.

When trunk-tester-and-photographer Jim McMichael and I arrived at the Proving Grounds gates the sun was shining and the birds were singing. An hour later, after we were fully credentialized, Jim and I and Oscar Kelley headed for the track in a drizzle that was destined to last throughout the day. We dropped Jim off at a strategic corner with his cameras and some low-pitched mutters to serve him in lieu of an umbrella. Then, with Kelley beside me in the front passenger seat, we set out to see what this Invicta could really do.

In the middle of the Proving Grounds' acreage there are two hard road-handling courses surfaced with slippery-when-wet asphalt, and one very tight bend course that was built especially to test the roadability of the Corvette. We headed for the handling courses first. After getting the feel of the car, I started building up speed. Despite the slimy road surface I noticed, in a few hard bends, that this Buick had hardly any breakaway. We slammed through these bends so fast that both of us, in turn, were jammed solidly against the doors. Making many laps, we built up more and more speed until we reached the point where I was taking almost full switchbacks at 50 and 60 mph. Only on the hardest of these did I feel any rear-wheel breakaway, although the overall side drift didn't consume more than a few feet.

This '59 Buick is one hell of a road car, with the traction of a leech. Many a lesser car on this wet road surface would have been off the shoulder like a French evening gown and sailing to parts unknown. You could no more have taken these bends at 60 mph with last year's Buick than you could sprout antlers on a rabbit. Oscar Kelley, the old fox, knew all this beforehand or he wouldn't have been sitting there in the front seat with me.

From the handling course we drove to the terrible rough-road test which offered a sporting variety of coral, brick, dirt and good old Bucks County potholes. Here the rear air bags defended our posteriors handsomely. The Buick sopped up the severest shocks like a wedding cake absorbing a well-aimed BB shot. Next on the calendar were the acceleration and high-speed braking tests.

In 1958 Buick introduced aluminum alloy brake drums on the front wheels for better heat dissipation—and received well-deserved awards for its fine braking properties. This year they still have the aluminum drums up front but they have added 60 cooling fins to the iron wheel drums in the rear—a great improvement in the anti-fade department. In one brake test I made from a full 100 miles an hour, I clomped the brake pedal and came to a stop without the slightest waver, though there was quite a bit of nose dip. These are really great brakes and they will wrestle the car down quickly at turnpike speeds.

The acceleration with Buick's new 401-cu. in. engine was brisk. During the 0-60 mph runs we averaged 9.4 to 9.6 seconds, top-flight performance. We made one top speed run of 122 mph and this seems to be about it. Naturally, this test car had the big engine. Buick also offers a smaller "economy" engine, displacing 364 cu. in. which we didn't test.

The windshield now features an exceedingly receding, or McCahill-type, hairline, as do most of GM's cars this year, with the glass curving well up into the roof. When I pointed out to Kelley that this might have a tendency to fry you like an overdone onion when you are heading into the sun during the mid-summer months, he tried to assure me that deep-tinted bands in the upper portion of the glass would soak up much of the heat. Over the back window, which also is much more expansive than heretofore, there is a small protruding ledge which will protect the necks of rear-seat passengers somewhat from third-degree sunburn. But as we are a nation devoted to Styling First in our cars, these small discomfitures will go unnoticed.

[*Continued on page* 150]

THIS is the time of year when caution and calm judgment pay special dividends in safety. Fast-changing weather conditions can turn roads you know like the palm of your hand into dangerous skid traps.

So keep your eyes peeled for misty-looking pavement, wet leaves, mud slicks and, of course, ice and sleet. They're all dangerous. But you can reduce these hazards by slowing down cautiously the moment you spot them.

Yet, suppose your car's rear wheels "break loose" anyway . . . here's what to do to regain control: First . . . don't hit the brake! Instead maintain light gas pedal pressure and steer front wheels *in the same direction* as the skid. Once you're tracking again, lift your foot off the gas and pump brakes lightly to slow down.

Cut down engine friction

Ordinary motor oils stiffen up in a cold engine—thin out in a hot one. Either way, they can't give full protection against wear. But Havoline Special 10W-30 Motor Oil stays free flowing in dead of winter to give you instant lubrication when you start. Its tough film won't break down at highest engine temperatures. And Havoline Special 10W-30 cleans as it lubricates! Result: you get *full protection* against wear, dirt and deposits. Your engine stays young, powerful, smooth running. Change to Havoline Special 10W-30 Motor Oil at your Texaco Dealer.

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The '59 Buick

[*Continued from page* 148]

The seats are excellent and well-pitched. The instruments are easy to read. The speedometer error was roughly five per cent, on the side of optimism, and when I asked Kelley about this he gave me the first good explanation I've ever had. Due to production variations, he explained, no two speedometers will be precisely identical. So it's better, he figures, to have them all register a little on the high side rather than on the low. Helps keep the customers out of trouble with speed cops.

One shock to Old Guard Buick fans will be the disappearance of such famed model names as Roadmaster (now called Electra), Century (now Invicta) and Special (now Le Sabre). Last year's Limited is now designated the Electra 225. I feel these name changes are a good thing because the '59 Buicks are so different from previous models that using the old handles would be as misleading as billing Paul Whiteman as a ballet dancer.

In summing up, this '59 car is by far the best Buick that has ever been built. It appears to me to be the product of more man-hours in the Think Department than any Buick to date. As an example, the engine room is no longer jam-packed. Much thought has gone into giving the engine enough space to breathe inside its compartment. Overheating is always a problem, so even the fan has been redesigned and shoved way forward on a long shaft to take advantage of all possible surging-upward air currents from the road, as well as to pull air through the cooling core more efficiently.

These 1959 Buicks are good, high-styled automobiles with excellent roadability and fine performance. For many years Buick has enjoyed very high customer loyalty. Buick customers won't be disappointed by the '59 cars. •

Hunting Wild Turkey

[*Continued from page* 71]

tive sign of the big bird—bare patches where turkeys have scratched the leaves away in their search for nuts. I have seen scratchings that covered as much as five acres, made by a large gang of birds. A gang is a number of flocks gathered together. Big gangs of 50 to 100 birds are rare—you are more apt to meet flocks of seven to 15 birds, usually with one old hen and several gobblers.

Also roaming the woods are hermit gobblers. They travel singly or in small groups. Hermit hens are sometimes encountered, too; usually their eggs have been eaten by raccoons, crows or other predators. Hermits are the hardest birds to bag and beginners will be wise to stalk the flocks if there are any around. Flocks move in fairly predictable ways. In the morning and evening they go to feed; they take a long siesta in heavy cover on higher ground in the middle of the day. A flock may travel miles in a short time to reach a gulley full of tall, seed-bearing weeds. After feeding at about 10 a. m., it will head back for its laurel-covered hill around 10:30, covering many miles in a short time.

When you are pretty sure there are turkeys in the neighborhood, having seen the feeding signs and perhaps heard a gobble, the thing to do is to find some sort of background for yourself—a large tree trunk, boulder or clump of bushes—and sit on the ground in front of it. Beginners make the mistake of putting themselves where they won't be able to see a bird without making the movement that will send it out of range before it is even seen. In his neutral clothing, with his face darkened, the hunter will be unnoticed by the birds even though he is in full view of them—as long as he remains motionless. An experienced hunter locates himself uphill from where he believes the birds to be, because turkeys never come downhill to a caller. Then he begins to make occasional use of his call, alert for the first answering call and for the first appearance of a curious turkey. He does not try for a shot until the bird is within at least 50 yards.

Walk quietly and slowly through the woods and sit for long periods near feeding areas. Call every now and then. A flock of turkeys is not likely to come to your call but they might answer you and let you know they are nearby. Usually it is the lone or scattered members of the flock that come to you—*and they always come uphill. Never downhill.* So place yourself accordingly. Get out early and stay out late in the afternoon.

Good luck, now—and happy hunting. •

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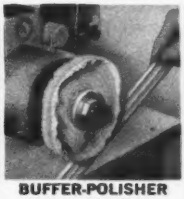

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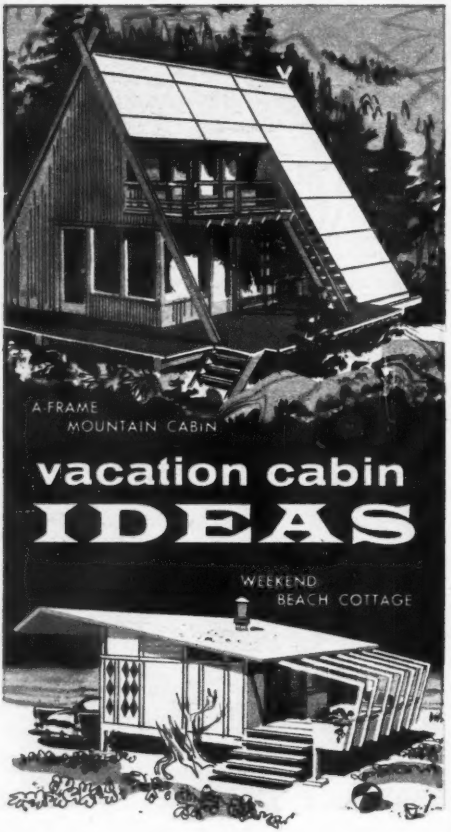

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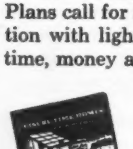

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Station Wagon

[*Continued from page* 82]

transfer 12 kids to the reform school in one trip or haul 38 full-grown toms to a king-sized turkey shoot. If your problems involve searching out uranium, gold, silver or other end-of-the-rainbow products, the Travelall would be hard to beat.

The roof stands 6'1½" off the ground, which gives enough interior room for hunters to stuff their grizzly bear on the spot and haul him home. For a farmer, especially those off the turnpikes, it'll insure his getting his milk, chickens and produce to market regardless of the weather, if he happens to buy a Travelall with four-wheel drive. Personally, I see it as a great hunting and sportsman's workhorse. You could use it for carrying your hunting dogs to field trials or you could hunt and fish in every corner of North America and still have a rig for dropping in at the local parchesi parlor on a Saturday night.

This is a helluva wagon for the man who needs such a piece of equipment. Its looks are passable enough, although not apt to bring on any deep bowing on the part of fancy hotel doormen when you pull up in front. Nor is this the crate you'd select for making a record coast-to-coast run. However, it might very well be the job I'd select if some sponsor said, "Drive from New York to Buenos Aires the hard way" —meaning no boats allowed.

Our test Travelall was delivered to my home in Bucks County, Pa. and we drove it over the most severe roads, down pathless gullies, and across and through streams that I wouldn't attempt with any other standard American station wagon. It wasn't equipped with four-wheel drive but I found the traction phenomenal. I took it over paths that only my Jeep had conquered before and racked up more than 1,000 miles of highway driving, including modern dual highways and twisty black asphalt.

In spite of its size this heap has a comparatively short (114 in.) wheelbase. This allows for terrific clearance for off-the-road going but causes some chop on third-rate hardtop roads. The suspension is leaf springing all around with telescopic-type shocks. The ride is a little horsebacky

[*Continued on page* 154]

FOR REPAIRING ALL ELECTRICAL APPLIANCES MOTORS ★ AUTOMOBILES ★ TV TUBES

Superior's New Model 70 UTILITY TESTER®

As an electrical trouble shooter the Model 70:

- Will test Toasters, Irons, Broilers, Heating Pads, Clocks, Fans, Vacuum Cleaners, Refrigerators, Lamps, Fluorescents, Fans, Switches, Thermostats, etc.
- Will test all TV tubes for open filaments, inter-element shorts, burned out tubes, etc. (Will not test TV tubes for quality. An emission type tester such as the model 82, described below, is required to test tubes for quality.)
- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, Leakage, etc.
- Will measure current consumption while the appliance under test is in operation.
- Incorporates a sensitive direct-reading resistance range which will measure all resistances commonly used in electrical appliances, motors, etc.
- Leakage detecting circuit will indicate continuity from zero ohms to 5 megohms (5,000,000 ohms).

As an Automotive Tester the Model 70 will test:

- Both 6 Volt and 12 Volt Storage Batteries • Generators • Starters • Distributors • Ignition Coils • Regulators • Relays • Circuit Breakers • Cigarette Lighters • Stop Lights • Condensers • Directional Signal Systems • All Lamps and Bulbs • Fuses • Heating Systems • Horns • Also will locate poor grounds, breaks in wiring, poor connections, etc.

Model 70 comes complete with 64 page book written in plain easy-to-understand language. Explains law of electricity, how to proceed with repairs of appliances and automobile circuits, how to test TV Tubes, etc.

Only $15.85

Superior's New Model 82

A truly do-it-yourself type

TUBE TESTER

TEST ANY TUBE IN 10 SECONDS FLAT!

1. Turn the filament selector switch to position specified.
2. Insert it into a numbered socket as designated on our chart (over 600 types included).
3. Press down the quality button—

THAT'S ALL! *Read emission quality direct on bad-good meter scale.*

FEATURES:

- Tests over 600 tube types.
- Tests OZ4 and other gas-filled tubes.
- Employs new 4" meter with sealed air-damping chamber resulting in accurate vibrationless readings.
- Use of 22 sockets permits testing all popular tube types and prevents possible obsolescence.
- Dual Scale meter permits testing of low current tubes.
- 7 and 9 pin straighteners mounted on panel.
- All sections of multi-element tubes tested simultaneously.
- Ultra-sensitive leakage test circuit will indicate leakage up to 5 megohms.

Production of this Model was delayed a full year pending careful study by Superior's engineering staff of this new method of testing tubes. Don't let the low price mislead you! We claim Model 82 will outperform similar looking units which sell for much more — and as proof, we offer to ship it on our examine before you buy policy.

Model 82 comes complete, housed in portable, hand-rubbed oak cabinet with removable cover. Only

$36.50

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☐ Model 70 ..... Total price $15.85 $3.85 within 10 days. Balance $4.00 monthly for 3 months.

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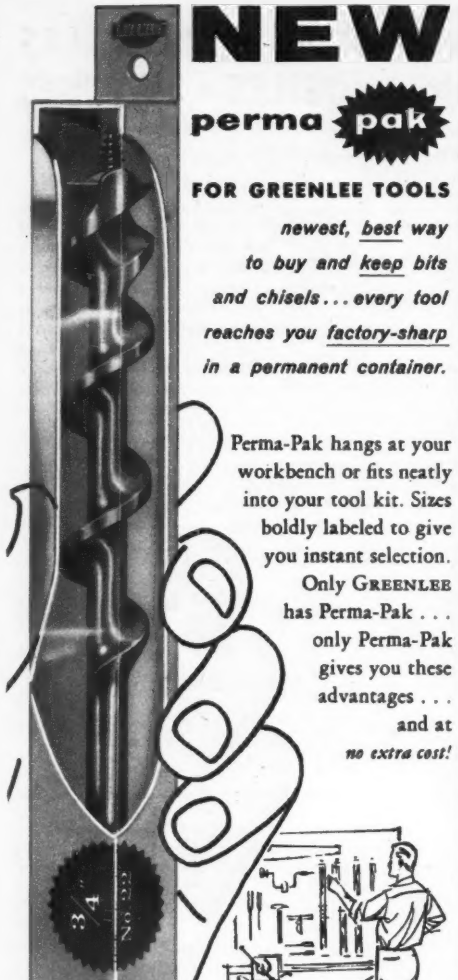


Station Wagon

[*Continued from page* 152]

when unloaded but improves immeasureably as passengers or beer kegs are added. With 1,000 lbs. or more aboard the ride is excellent. After all, International Harvester has been making trucks since Ben Hur respoked his wheels, and the chassis of the Travelall is basically a semi-heavy-duty truck chassis. One way (somewhat unkind) of describing the Travelall would be to point out that it is primarily a panel truck with windows and a station wagon-type rear door.

As all kids older than four know, trucks are meant to carry loads, not inflated balloons, and so the ride is somewhat harsher than many powder puff American station wagons. By the same token, this International station wagon will easily carry twice the load of any other American wagon without buckling. The heavy steel battleship-like frame will stand many times the abuse you could give a dainty creampuff. To compare this job with other American wagons is like comparing a rugged hunting boot with a patent leather evening pump.

The engine is a six-cylinder overhead-valve mill displacing 240 cu. in. International Harvester engines have been Tiffany quality for many years. To prove this point, one of the greatest names in marine engine building, Palmer of Cos Cob, Conn., has been using International Harvester blocks in many of their models for years. The engine is small by today's passenger car standards; it only develops 140 hp and 223 foot-pounds of torque. However, due to gearing, you never feel the slightest lack of power. Our test rig had a Borg-Warner automatic transmission which removes much of the chore in general driving. The standard transmission is a three-speed manual. The wagons with four-wheel drive have a four-speed manual box.

The comfortable cruising speed, we found, was 60 mph on top-grade roads. Naturally, it *can* go a lot faster but becomes uncomfortable after 65 mph due to engine noise and wind-up. On our test, I nosed this rig just over 80 mph. That was as fast as I wanted to drive since the Travelall was hardly built to be a speed wagon. Zero to 30 mph was a respectable

5.2 seconds and 0-60 mph averaged 17.3 seconds. Though this doesn't set any new MI records, it is hardly slow.

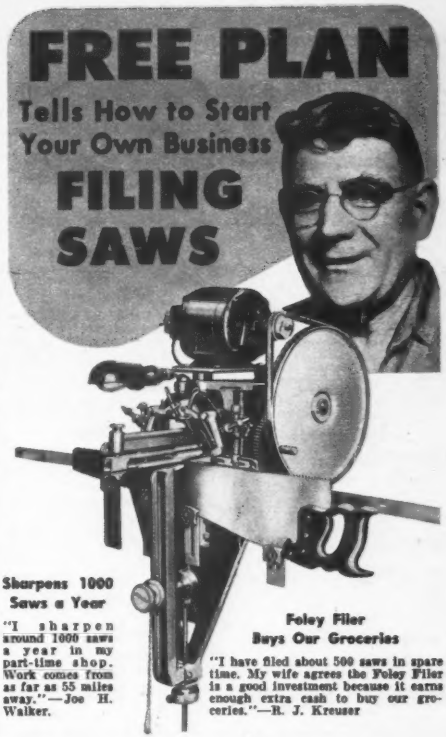
Also available for this Travelall, in addition to four-wheel drive, is a winch power take-off for farm chores. The steering is excellent; in fact, it's just about the best non-power steering I've found in any kind of American vehicle. It steered so easily that when I first took the wheel I said, "Gee, what do you know—power steering!" To check this, I brought the car to a complete stop and only then was it evident that the car had manual steering. For my two old headhunting pals from Borneo, when a car is stopped and you try to swing the wheel from right to left, you know instantly whether you have or haven't any power assist.

The brakes on my test car were powered, though. These were as smooth as an uncooked egg yolk. As a matter of fact, the Travelall has the smoothest power brakes of any American car I've driven. I realize that I've just rated the Travelall's powerless steering and power brakes the best in America, which is quite something in a vehicle of this type. In order not to confuse any issues, though, I still think Chrysler's *power* steering is the best.

The visibility is excellent for two simple reasons: you're up so high and you have a tremendous top-to-bottom windshield. Unlike today's typical station wagons, the seats do not fold flat into the floor but must be removed if the entire floor space is needed. This might prove a bit inconvenient under certain circumstances—such as buying a rowboat in Florida with the intention of taking it home inside.

In summing up, for a guy who needs a *real* station wagon, this is the gutsiest, most practical wagon I've ever tested. This is no camouflaged dude or re-worked sedan in a cowboy suit, but an Honest Injun real working wagon. You could haul 1,500 pounds of cracked ice in it (if your party looks like it might develop into one of that size) or you could clean out half a graveyard in one night if your hobby is body-snatching. With all apologies to Palladin (alias Dick Boone) on Saturday night TV, the Travelall can be summed up in four words: "Have guts, will travel." •

When answering advertisements please mention MECHANIX ILLUSTRATED



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Here is a steady repeat CASH business that pays from $3 to $6 an hour, and you can start in your own basement or garage in your spare time. Every saw you sharpen with the machine accuracy of the Foley Saw Filer is an ad that brings more customers. J. C. Deibert wrote us: "Since I got my Foley Filer five years ago, I have averaged 4¼ saws each day over all this time." Howard Kuhns says: "We operate 2 Foley Filers, and our business averages about 500 saws per month. The count last year was 5,798 saws."

You can file all hand saws, also band and cross-cut circular saws on the Foley Saw Filer. The adjustments are simple—there is no eyestrain—and you can start right away to turn out perfect cutting saws. "The first saw I sharpened with my Foley Saw Filer came out 100%. I think it is a marvel of perfection."—writes Clarence E. Parsons.

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Fishes For Dollars

[*Continued from page* 87]

microphotographs. Willier knew little about photography. Reading up on the subject he came across facts about silver washing out in the hypo. It was then, in the early '30s, that he began to wonder if he could find a way to recover the silver.

Willier experimented with chemicals until he discovered that adding sodium sulphide to the hypo caused the silver to sludge to the bottom, making it recoverable simply by removing the hypo.

After the "discovery," Willier took his run-down 1930 auto and invested $4.68 in equipment—a barrel and some rubber hose. He rebuilt the barrel so that it became almost a perfect vacuum, then disconnected the windshield wipers on his car and attached the hose instead. When he turned on the wipers enough suction was created to enable him to pump liquid from almost any level beneath his car into the barrel on the back seat.

Then he went out to solicit business, offering photographers a share in silver recovered from the hypo which he would pump from their tanks into his barrel. He discovered that he wasn't the only one with the idea and that no one had yet come up with a satisfactory process.

Willier got so little silver out of the hypo solutions that it hardly paid for the time he was putting in. For more than eight years he kept at it, adding to his roster of customers, working every night in the week, weekends and holidays.

He kept searching for better chemical means of recovering the silver. One morning one of his chemical mixtures blew up. The burning liquid splashed in his face and he lost the sight in one eye.

He continued his experimenting when he recovered, this time turning to electrolytic principles. Finally, when he hit upon the combination that gave him his invention, he decided it was time to leave his NBS job and strike out on his own.

Since he left NBS, he has kept a crew of men busy turning out his power boxes and electrodes, weighing silver that comes in from customers and keeping tabs on new business.

He has also discovered a powerful sales feature. Removing the silver from the hypo, he says, has a regenerative action

which increases the life of the hypo. His files show records of many customers who have stretched hypo life from 400 to 900 per cent.

A typical 20-gallon hypo tank used in a medium-size photo operation, says Willier, will yield anywhere from $25 to $100 worth of silver per month at current prices of silver. It varies according to the amount of photo processing done.

His customers range from photographers who just get a few dollars' worth of silver every month to a large industrial organization from which he has recovered an average of $1,000 worth of silver per month. But quite a few of his mid-western customers, Willier reports, are getting as much as $200 worth of silver each month from 10- and 15-gallon hypo tanks.

It all adds up to quite a catch for the man who likes to go fishing—in hypo tanks. •

Costs To Be A Ham

[*Continued from page* 96]

in price. For example, one relatively small rig costs $150 as a kit and $200 assembled; another, $750 as a kit and $950 assembled. Transmitter kits that sell for more than $200 are rather complicated and should be tackled only by people with some previous experience in electronics construction work.

The price of a transmitter is usually in proportion to its power rating. By law, hams are limited to a maximum of 1,000 watts, which is less than that consumed by most irons and broilers. Power helps in punching signals through unfavorable atmospheric conditions.

A transmitter rated at 1,000 watts draws about 3,000 watts from the power line, which must be a special heavy-duty one. Lower power transmitters are easier to install and handle, to say nothing of being cheaper. Equipment rated between 100 and 500 watts is the most popular, at prices between about $250 and $500.

Ham apparatus for autos begins at about $200. There is actually a waiting list for a lush new unit that sells for $1,043, not including aerial or microphone! (See I Talk To The World From My Car, May '58 MI.)

Transmitters require antennas of rather

Be sure it's a genuine CHANNELLOCK

Why? Only Channellock has undercut, interlocking channels that can't slip no matter how tight you grip. Only Channellock has the reinforced tension edge to withstand maximum gripping force. These exclusive features have made the Channellock No. 420 the first choice of skilled mechanics everywhere. So be sure you get only genuine Channellock pliers. Look for the trademark on the handle.

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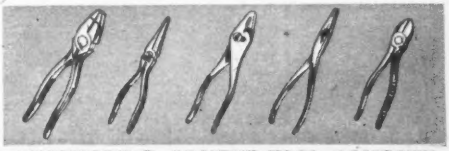

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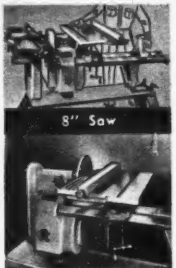

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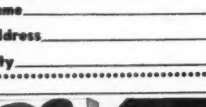

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WESTERN RADIO Dept. BRI-10, KEARNEY, NEBRASKA

critical dimensions and shapes. The simplest can be bought for about $10. Most hams eventually erect beam aerials which resemble TV antennas but are much larger. Consisting of two or more parallel aluminum rods or tubes, beams act very much like searchlight reflectors. The antennas are invariably mounted in electric-motor rotators, controlled from the ham shack, so that the radiated signals can be aimed in any desired direction. A properly designed beam is a cheap way of giving a low-power transmitter the wallop of a much stronger one. Beams cost from about $25 to $250, rotators about $100 extra.

Indispensable transmitter accessories are: microphone, $10 up, $25 average; key for dot-and-dash transmission, $2 to $18; log books, $1; call book, listing all ham stations in the world, $5.

A little arithmetic shows that a relatively modest ham station can add up to quite a few dollars. But what the money buys in terms of pleasure, excitement and gratification is incalculable. •

HAM EQUIPMENT DATA

The manufacturers below will be glad to send you complete technical data on the ham equipment mentioned.

Allied Radio Corp., 100 N. Western Ave., Chicago 80, Ill.
American Geloso Electronics, Inc., 312 Seventh Ave., New York 1, N. Y.
Barker & Williamson, Inc., Bristol, Pa.
Collins Radio Co., Cedar Rapids, Iowa.
Central Electronics, Inc., 1247 W. Belmont Ave., Chicago 13, Ill.
Cosmos Industries, Inc., 31-28 Queens Blvd., Long Island City 1, N. Y.
Electro-Voice, Inc., Buchanan, Mich.
Gonset Co., 801 South Main St., Burbank, Calif.
Hallicrafters Company, 5th and Kostner Avenues, Chicago 24, Ill.
Hammarlund Mfg. Co., Inc., 460 W. 34th St., New York 1, N. Y.
Heath Company, Benton Harbor, Mich.
E. F. Johnson Co., Waseca, Minn.
National Company, Inc., Malden 48, Mass.
Technical Materiel Corp., Mamaroneck, N. Y.

A triangular file in a chuck will bore a clean hole through glass. Build a putty dam around the area, fill in with turpentine and start drilling.

Thinking Machines

[*Continued from page* 91]

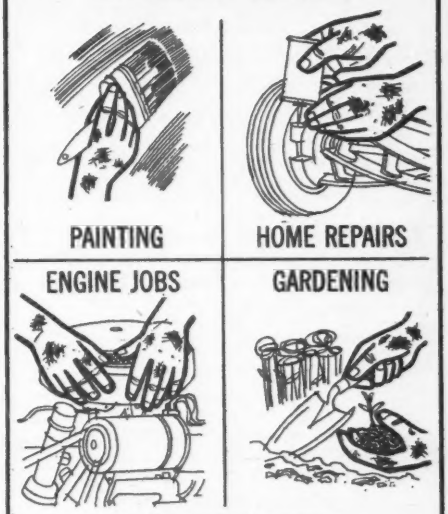
Some machines are sold outright, some are rented, and some are available on a job basis, like a washing machine in a laundry center. Several computing service centers where problems are solved for a fee have been established by the leading U. S. producers in principal cities here and in Europe. Some of the more spectacular uses for computers are in national defense. A ballistic missile in flight, for example, must be in exactly the right position at precisely the right speed when the thrust is cut: An error of one foot per second in speed can cause a one-mile miss at the point of impact.

As it climbs a missile sends radio signals to a computer on the ground, informing it about variations in wind, fuel consumption, center of gravity, temperature, rotation of the earth and a score of other items. The computer figures the effect of these factors and instantly flashes instructions to keep the missile on course. When the great "bird" hits the right speed and is properly trimmed, the computer cuts the motor and the missile coasts at 14,000 miles an hour to its target. No human being could possibly work with the speed and accuracy required by this complex operation.

One of these machines has almost every one of us at its electronic fingertips: Computers at the Social Security Administration in Baltimore keep track of 160 million names and 1,750 billion dollars in wages. Formerly a change in a person's name, or a transposed serial number, caused trouble. Now the computers know some 25 common sources of trouble—and search for them in order of probable occurrence. Correspondence in this, the world's largest bookkeeping job, has been greatly reduced and the same staff can handle three times as many accounts.

One of the routine marvels computers are performing nowadays for business is the operation of the Boston home office of the John Hancock Mutual Life Insurance Company, where a Remington-Rand Univac II under the direction of five operators keeps all the records on two million policy accounts. The computer selects the accounts on which premiums are coming due, and calculates the amounts owed by

ON ANY DIRTY JOB



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matching data from magnetic tapes with premium and interest tables in its memory. It wraps up the job by printing out premium notices, ready for mailing, at the rate of 100 per minute.

Once a week it makes out the home office payroll, figuring income tax, bond purchase, health insurance and other deductions as it writes 7,500 checks an hour.

On the anniversary of each policy, the computer calculates cash values, dividends, loan interest due, or interest payable on accumulated dividends, and prints out a statement.

The present computers grew out of the early tabulating, calculating and teletype machines. Combined into one complete system, and speeded up by electronics, the most advanced of them can solve any problem that can be expressed in writing. Here, briefly, is how they work. An operator types information and instructions on a special typewriter that converts letters and numerals into a code of dots on a magnetic tape. The computer then "reads" these signals and sends them to its central "brain" or "memory"—which consists of thousands of pinhead-size iron doughnuts or cores, each linked electrically to all others.

This "memory" temporarily stores partial answers to a long problem until the computer's ingenious circuits call them out at the right moment to complete the answers. It also permanently stores for repeated use such standard data as logarithm tables or withholding-tax figures. The actual calculating is then done on orders from an instruction tape that tells the computer precisely what to do with the stored information.

An involved problem may require thousands of steps, but computers make light work of it by performing 40,000 arithmetical operations per second. Electrons flash through the bewildering maze of up to 500,000 circuits and deliver the correct answers to a high-speed printer which types it out at speeds up to 900 lines a minute. The printers are versatile, too: they will express the answer in figures, plain language, or a diagram. And to top it all, the computer automatically checks the accuracy of its own answers. In rare cases of error—dust specks are the usual villains—the machine stops and refigures.

One of the most popular exhibits at the World's Fair in Brussels is a computer that

answers questions in any one of ten languages. The questions are about major historical events in any year from 4 B.C. to the present. A visitor calls out, in German for instance, the years 1480 and 1766. The operator enters these years and the language on the keyboard. In less than a second the machine's electric typewriter begins printing, in German: "1480—Leonardo da Vinci invented the parachute. 1766—Mozart composed his first opera at the age of 11."

When a concordance of the Revised Standard Version of the Bible was needed last year a computer was given the task: to identify and list by location and context the Bible's 800,000 words. The 2,000-page Concordance that resulted contains 350,000 cross references. To prepare the previous Concordance took 30 years. After a few months of preparatory coding, the computer did the job in a few hours.

A computer demonstrated detective talents while indexing the Dead Sea Scrolls. The Concordance technique was used but in many cases the computer had to guess at letters or entire words missing from the crumbling old documents. It did this by analyzing the words preceding and following each gap. Then it scanned the thousands of index words to find the one that most nearly fitted the context. To test the accuracy of the method, portions of known text were blocked out and the partial sentences given the machine. It replaced correctly as many as five consecutive words.

The giant brain has also been set to work translating the current flood of scientific papers produced in a score of languages. First, every word in a sizable English dictionary is listed on tape under a code number. The Russian, French or German equivalents for each word are given the same number. Then, to translate from Russian to English, for example, a tape with the Russian code numbers is fed into the machine, which matches the numbers and prints out the English. In an early experiment, the computer was asked to translate the English saying "Out of sight, out of mind," into Russian. The result was startling: "Invisible and insane." Newer computers are much more sophisticated, and while human editing to rearrange awkward word sequences is still needed, the computer can make hundreds of rough translations in a day.

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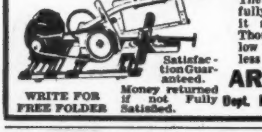

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Computers make business forecasts, prepare weather predictions, run refineries. They hunt up legal precedents, help in the diagnosing of diseases, and compose harmonic but uninspired music. They even help design better computers.

"Computers can be programmed to do almost any mental work a man can spell out," says Dr. Alan Perlis, one of the mathematician-philosophers who have played key roles in extending the scope of computers. "Each generation of human pupils must be taught afresh, but once you've taught any single computer to perform a process, you've taught them all, and forever. After a method for solving a certain problem is successfully worked out, it becomes part of the huge library of machine methods now available to users everywhere."

Manufacturers have been working to give computers larger and faster memories and greater flexibility; they also have sought to realize the goal expressed a decade ago by the late John von Neumann, a trail-blazer in computer development. "Computers must be able to modify their behavior on the basis of their experience," he said. One of the scientists tackling this problem is Dr. A. L. Samuel, who has taught an electronic computer to play checkers. This has a serious purpose: to train the machine to learn by experience.

The first step was to number the 32 checkerboard squares and the 12 men on each side. Then into the computer's brain went a few thousand plays, selected from books written by experts—a half-dozen promising moves for every situation. A few instructions were added, and it was ready. The computer politely gives its human opponent the choice of colors, then prints out "M1 12 16"—indicating the machine's first move is piece 12 into square 16. Its human opponent replies by punching out the numbers of his play on a card which he gives to the computer.

The machine now runs over all plays open to it. It "mentally" makes a move, calculates what would be the best response for its opponent, figures its next probable move in that case, then the probable reply to *that*. It carries this procedure forward six steps before printing out the play it has selected. It does all this in 15 seconds and then waits—humming quietly—for its opponent's next move.

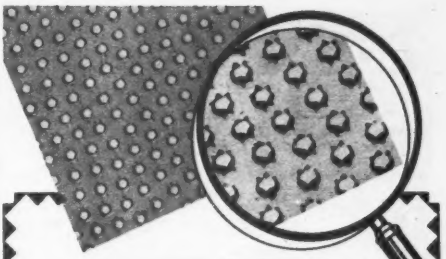
The checker-playing computer keeps

every move of every game stored in its "memory," and it displays uncanny powers: it will sacrifice a piece to gain a future advantage; and it marks the plays that have led to losing games. When it next encounters the same situation, it selects a different move from its repertoire. The result is that it shows improvement in almost every game, and now easily defeats anyone except a real expert. To watch it print: "EXPECT TO WIN IN FIVE MOVES" gives some observers an uneasy feeling.

Computer men, thrilled by the powers of the *genie* they have created, like to speculate on the tremendous promise it holds for human advancement. "Computers open up scientific possibilities that were unthinkable before," says Ralph J. Cordiner, Chairman of the Board of General Electric Co. "They will make possible entirely new products and industries. These computer-derived technologies will be a major source of new employment in the coming decades."

Such leaders as Dr. Simon Ramo of Ramo-Wooldridge believe that the computer, by making vast new areas of knowledge manageable, and by directing operations too fast or too complex and requiring too much speed for a man to handle, will prove to be the most valuable of all the developments of these fast-moving times. No man can foretell what the future holds, but there is no doubt that many of our questions about it will be answered with the speed of light. •

Use a water-filled insect sprayer to moisten that broken wall area before laying on the patching plaster.



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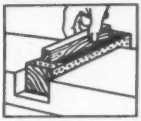

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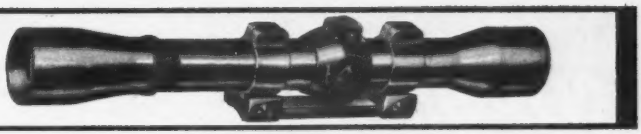

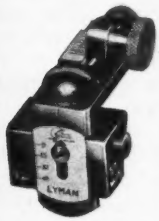

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ESCO PRODUCTS, Oakridge, N. J.

Sun 'Scope

[*Continued from page* 142]

sheet metal or wood cut to size as shown.

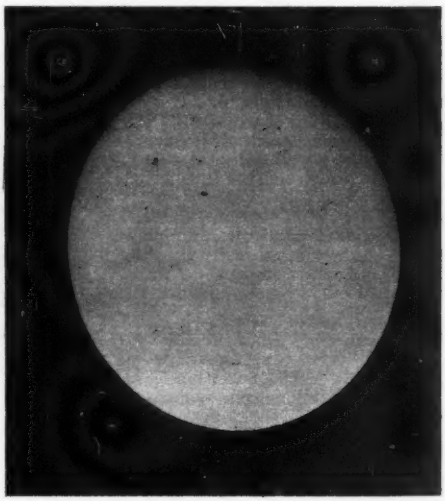
The telescope eyepiece is removed from the adapter when the sun 'scope is attached. The lens assembly is made from two pieces of ¾-inch pine. A hole is cut in each piece deep enough to allow the lenses to lie flush with the board surfaces. The smaller lens is placed in opposition to the larger one as shown in the drawing.

With the sun 'scope attached to the telescope, remove the former's lens assembly and turn the telescope into the sun with the sun 'scope's screen in position to check alignment. A brightly illuminated area will appear on the screen showing the shadow image of the prism.

Remove the screen and slide the lens assembly back in place near the eyepiece adapter; replace the screen and secure it with the setscrews. Focus for the brightest image when the sun beam is reflected from the prism into the center of the lenses of the sun 'scope. Of course, refocusing will be required for different distances between screen and lens.

Those who intend to build this instrument will be able to change many of the parts or their arrangement by using a different type of support and framework to suit individual needs.—*Jerry Pavek*

THIS PHOTOGRAPH of sun's image on screen shows how an enlargement points up sunspots.



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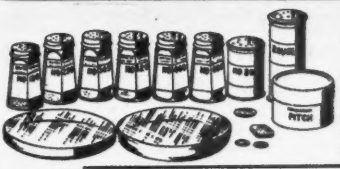

SPECIAL! SPECIAL!

Complete Optical Kit for Building 6" Reflecting Telescope

(Described in Mech. Illus. Feb. & March 1958 issues)

Consists of plate glass mirror blank; tool; 2 finely ground and polished lenses to make ½" F.L. eyepiece; first surface diagonal mirror; magnifying lens; 8 assorted abrasives from coarse to fine, in shaker-top containers; tempered burgundy pitch.

Stock No. 70,154-B .....$9.00 Postpaid

DELUXE KIT
for this project
Same items shown at left, but contains Pyrex mirror blank—1" eyepiece lenses.
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4¼" ASTRONOMICAL TELESCOPE

Mt. Palomar type! Up to 270 Power. A fine Reflector Telescope complete with real Equatorial Mount and Tripod and 6X Finder. Aluminum tube, 4¼" dia. mirror, rack and pinion focusing eye-piece holder, 2 eyepieces and mounted Barlow Lens for 40X, 90X, 120X and 270X. Low cost accessory eyepiece available for Power up to 540. Shipping weight approx. 25 lbs.

Stock No. 85,006-B.....complete, $74.50 f.o.b., Barrington, N. J.

See the Stars, Moon, Planets Close Up!

3" ASTRONOMICAL REFLECTING TELESCOPE

(Famous Mt. Palomar type)

60 to 180 Power—An Unusual Buy!

Assembled and Ready to Use! You'll see the Rings of Saturn, the fascinating planet Mars, huge craters on the Moon. Aluminized and overcoated 3" diameter high-speed f/10 mirror. Telescope comes equipped with a 60X eyepiece and a mounted Barlow Lens, giving you 60 to 180 power. Low-cost accessory eyepiece available for power up to 320. Optical Finder Telescope included. Sturdy, hardwood, portable tripod. Free with scope: Valuable STAR CHART and 272 page "Astronomy Book."

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Made by B & L and E.K.
24" F.L. f/8, in 27" long Lens Cone

Gov't. Cost $1210
Our Price $39.50 Used
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Use as long range, Big Bertha Telephoto lens—for Richest field (wide field, low power) telescope—as Opaque Projector lens—for photographing Artificial Satellites. Mounted in beautiful brass cells, lenses are 4" dia.—precision 4-element type, Aero Tessar and Aero Ektar (no choice). Easily removed. Diaphragm (f/6 to f/23) is included. Opens approx. 1" to 3½". Lens and cone—wt. 25 lbs. Sturdy carrying trunk—wt. 26 lbs.

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Tremendous bargain! 1¼" f.l.! Focusing metal mount is 2-11/16" in diameter. Consists of 3 coated achromats. 65° field. Govt. cost over $100. Use these with the 24" f.l. Aerial Camera Lenses to make a 16 power wide field telescope, etc.

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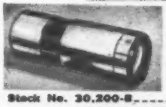

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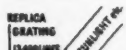

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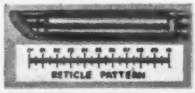

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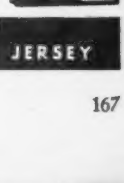

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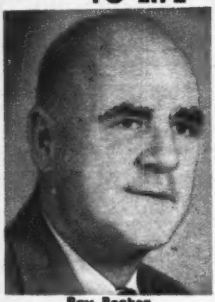

Ray Becker of Winchester, Va.

Ray J. Becker, Winchester, Virginia, discovers a fortune with VX-6, he says:

"From my opening purchase of 12 dozen in November 1957, my sales reached a staggering total of almost $60,000.00, in retail sales during the following eight months.
"My profits have been so amazing that I gave up my semi-retirement and now have the substantial business I have always dreamed of."

SUBJECTS HIS OWN CADILLAC TO TORTURE TEST TO PROVE VX-6.

As a precaution, I parked my car on the top of a steep hill, then I subjected my Cadillac to the torture test. Well you know what happened. Fortified by this test, I was able to go out and tell others with honesty of what VX-6 actually does for them. From the very start it was fantastic. My territory developed so fast that in April 1958, after being in business only five months, I sold and made a cash profit on 780 dozen VX-6 in that 30 day period alone. And you know what the profit per dozen is. My business has grown by leaps and bounds to a network of sub-agents making big profits for me and for themselves."
After visiting with Andy Scott, Sales Manager of National Dynamics in New York, he has shown me similar profit stories throughout the country. He assured me that there are available territories for men who are prepared to act immediately and enjoy this pleasant work and fast profits.

$370,000,000 MARKET

This is the amount of batteries sold every year so you can easily see why every one of the more than 60,000,000 car owners need and want VX-6. THAT'S NOT ALL—VX-6 is a necessity for every farmer, taxi-cab, trucking fleet, boat owner, city and state government, construction firm, etc. You also sell service stations and automotive stores for bigger volume and steady repeat business. This is a big money-maker for Fall and Winter selling.

4 SECOND BATTERY SIGHT CHECK SELLS VX-6 FOR YOU

You make sales this sensationally easy way—just raise the hood of your customer's car and look for the tell-tale greenish or white formation around the battery (9 out of 10 cars have this). THIS IS SULPHATION. It means the battery is dying and unless VX-6 is added, your customer will have to spend between $20 and $40 for a new battery soon. The most powerful manual in direct selling history proves this fact for you. YOU MAKE SALES BY TALKING FROM THIS MANUAL.

MORE PROOF VX-6 MAKES YOUR BATTERY BETTER THAN NEW

If you're not satisfied with what the car battery experts claim about damaging sulphation, try your own positive battery test. Here is the most practical and effective way to prove to yourself every claim made for VX-6. FIRST ADD VX-6 TO YOUR BATTERY, THEN WITH YOUR IGNITION SWITCHED OFF AND YOUR BRIGHTS ON, STEP ON THE STARTER UNTIL THE BATTERY IS SO RUN DOWN IT WON'T START THE ENGINE OR LIGHT THE LIGHTS. NOW WAIT 3 MINUTES WITH HEADLIGHTS OFF—THEN STEP ON THE STARTER. THE BATTERY WILL START YOUR CAR INSTANTLY WITH A SURGE OF POWER THAT IT HAS REGAINED DURING THAT BRIEF THREE MINUTE INTERVAL. NOW YOU CAN MAKE AS MANY STARTS AS YOU LIKE OR TESTS WITHOUT FEAR OF BATTERY FAILURE. THE BATTERY WILL REGAIN ITS POWER AFTER A BRIEF PAUSE EVERY TIME.

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$1,000. profit in a single day.
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MEN LIKE YOU HAVE MADE THESE SALES

BEFORE YOU GO WILD WITH PROFITS

Before you get involved with hundreds of dollars worth of VX-6 for immediate profits, we want you to give yourself a chance to prove every claim we have made for VX-6. When you are completely satisfied, you'll get the finest deal you ever dreamed possible. Please, please, we are not interested in sample buyers. If you mean business, you can send your $3.00 for a package of VX-6, including the most dynamic sales and testimonial material ever used to make sure fire sales. It contains three one ounce vials of the quick acting formulation needed to recharge all batteries automatically and immediately. Act now, while choice territories are available.

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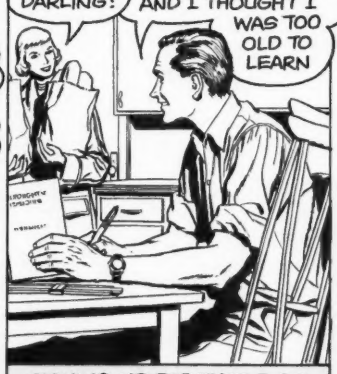

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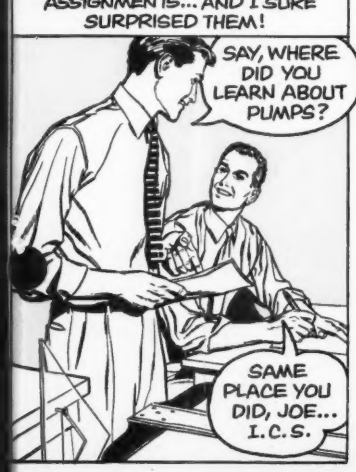

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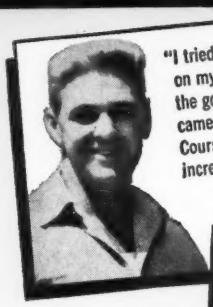

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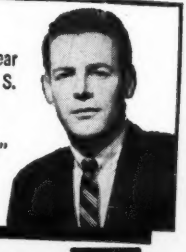

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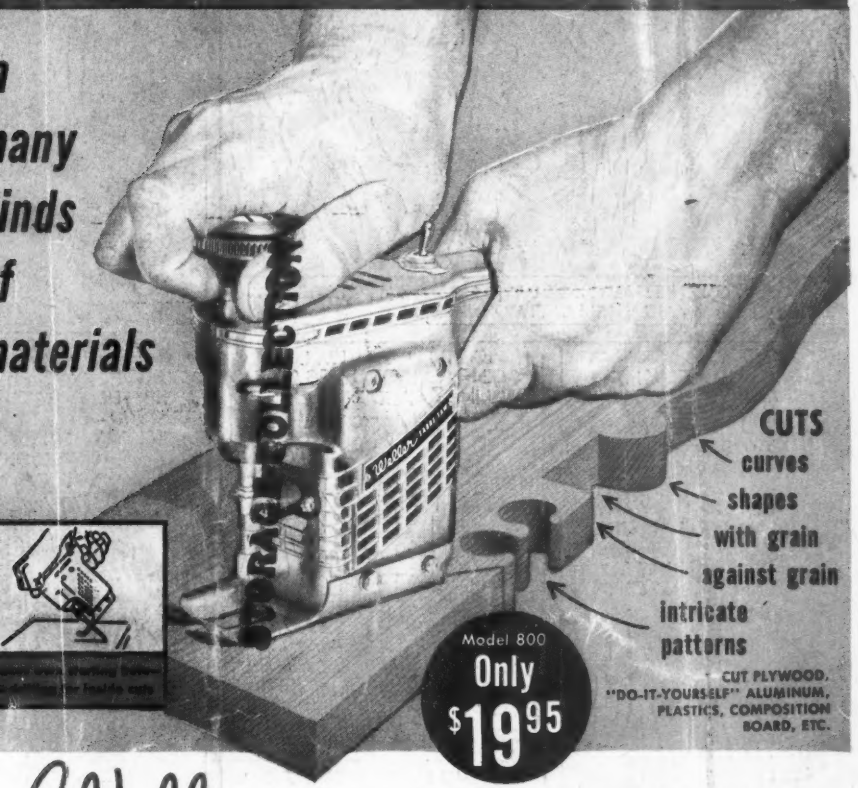

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This man is a "security risk"!

Age, 29. Married. Two children. High school education. Active in lodge, church, veterans' organization. Employed by large manufacturing concern. Earns $82 a week.

Sounds like an Average Joe. And he is. Too average! He's got a job. It pays fairly well. He's satisfied.

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As it stands now, he's stuck in his job. Can't seem to make any headway. He's reluctant to try. So he just hangs on.

This man is a "Security Risk" to his wife and children. His family probably will never enjoy the comforts, the prestige, the good living that could be theirs.

If hard times come, they are almost sure to be hurt. For an Average Joe can't compete with trained men when the chips are down.

A man like this would do well to start a planned program of self-improvement. In his spare time. In a field related to his interests and abilities. Right NOW!

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- ☐ Magazine & Book Illus.
- ☐ Show Card and Sign Lettering
- ☐ Sketching and Painting

AUTOMOTIVE
- ☐ Automobiles
- ☐ Auto Body Rebuilding and Refinishing
- ☐ Auto Engine Tuneup
- ☐ Auto Technician

AVIATION
- ☐ Aero-Engineering Technology
- ☐ Aircraft & Engine Mechanic

BUSINESS
- ☐ Accounting
- ☐ Advertising
- ☐ Business Administration
- ☐ Business Management
- ☐ Cost Accounting
- ☐ Creative Salesmanship
- ☐ Managing a Small Business
- ☐ Professional Secretary
- ☐ Public Accounting
- ☐ Purchasing Agent
- ☐ Salesmanship
- ☐ Salesmanship and Management
- ☐ Traffic Management

CHEMICAL
- ☐ Analytical Chemistry
- ☐ Chemical Engineering
- ☐ Chem. Lab. Technician
- ☐ Elements of Nuclear Energy
- ☐ General Chemistry
- ☐ Natural Gas Prod. and Trans.
- ☐ Petroleum Prod. and Engr.
- ☐ Professional Engineer (Chem)
- ☐ Pulp and Paper Making

CIVIL ENGINEERING
- ☐ Civil Engineering
- ☐ Construction Engineering
- ☐ Highway Engineering
- ☐ Professional Engineer (Civil)
- ☐ Reading Struc. Blueprints
- ☐ Structural Engineering
- ☐ Surveying and Mapping

DRAFTING
- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Drafting Machine Design
- ☐ Electrical Drafting
- ☐ Mechanical Drafting
- ☐ Sheet Metal Drafting
- ☐ Structural Drafting

ELECTRICAL
- ☐ Electrical Engineering
- ☐ Elec. Engr. Technician
- ☐ Elec. Light and Power
- ☐ Practical Electrician
- ☐ Practical Lineman
- ☐ Professional Engineer (Elec)

HIGH SCHOOL
- ☐ High School Diploma
- ☐ Good English
- ☐ High School Mathematics
- ☐ Short Story Writing

LEADERSHIP
- ☐ Industrial Foremanship
- ☐ Industrial Supervision
- ☐ Personnel-Labor Relations
- ☐ Supervision

MECHANICAL and SHOP
- ☐ Diesel Engines
- ☐ Gas-Elec. Welding
- ☐ Industrial Engineering
- ☐ Industrial Instrumentation
- ☐ Industrial Metallurgy
- ☐ Industrial Safety
- ☐ Machine Design
- ☐ Machine Shop Practice
- ☐ Mechanical Engineering
- ☐ Professional Engineer (Mech)
- ☐ Quality Control
- ☐ Reading Shop Blueprints
- ☐ Refrigeration and Air Conditioning
- ☐ Tool Design ☐ Tool Making

RADIO, TELEVISION
- ☐ General Electronics Tech.
- ☐ Industrial Electronics
- ☐ Practical Radio-TV Eng'g
- ☐ Practical Telephony
- ☐ Radio-TV Servicing

RAILROAD
- ☐ Car Inspector and Air Brake
- ☐ Diesel Electrician
- ☐ Diesel Engr. and Fireman
- ☐ Diesel Locomotive

STEAM and DIESEL POWER
- ☐ Combustion Engineering
- ☐ Power Plant Engineer
- ☐ Stationary Diesel Engr.
- ☐ Stationary Fireman

TEXTILE
- ☐ Carding and Spinning
- ☐ Cotton Manufacture
- ☐ Cotton Warping and Weaving
- ☐ Loom Fixing Technician
- ☐ Textile Designing
- ☐ Textile Finishing & Dyeing
- ☐ Throwing
- ☐ Warping and Weaving
- ☐ Worsted Manufacturing

Name _____ Age _____ Home Address _____

City _____ Zone _____ State _____ Working Hours _____ A.M. to P.M. _____

Occupation _____

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